



RECORD

K3515

F. R. Fosberg

Collection number books

No. 19037 - 19843

If found please return

to F. R. Fosberg

404 Edificio Lampas Brush

1078 Ave. Jimenez de Guzmán

Bogotá, Colombia

27 R.F.D. #1, Holmes Run Rd.

Falls Church, Virginia, U.S.A.

[illegible]

Collection and Field Note Book

No. 8

(October 28, 1942 - Jan. 25, 1943)

(19037 -- 19843)

| | Pages |
|---|--------------|
| GUATEMALA | 1-14 |
| Finca La Felicidad, near Antigua.....19037-19038 | 2-3 |
| Finca La Capitia, near Guatemala City..... | 4-7 |
| Barranca 19039-19061 | 8-12 |
| SAN SALVADOR airport.....19062 | 12-13 |
| COLOMBIA..... | 12-191 |
| <u>Cundinamarca</u> | |
| Montserrate 19063-19084 | 12-17 |
| Bogota-Tunja Highway | 18-19 |
| <u>Bojaca</u> | |
| Belen-Susacon summit | 19 |
| <u>Norte de Santande</u> | |
| Rio Marqua, above Bata 19085-19086 | 20-21 |
| Rio Valegra 19087-19101 | 22-25 |
| Finca Los Alpes..... 19102-19204 | 24-25 |
| Rio Colorado 19105-19123 | 26-31 |
| Rio Valegra hills..... 19124-19136 | 30-33 |
| Bata 19137-19140 | 34-35 |
| Rio Valegra 19141-19142 | 34-35 |
| w. end of Preciosas .. 19143-19151 | 36-38 |
| Samaria 19152 | 38-39 |
| Bosque de Aguadas 19153-19157 | 38-41 |
| Cordillera de Hoya Gr. 19162-19168 | 42-43 |
| Samaria 19169-19170 | 42-45 |
| Quebrada Samaria 19171-19201 | 44-51 |
| Vitelma 19202-19220 | 50-53 |
| <u>Tolima-Huila</u> | |
| Magdalena Valley | 52-53 |
| <u>Huila</u> | |
| Neiva 19221 | 54-55, 78-79 |
| La Junta 19222-19250 | 54-59 |
| F. Altagracias, R. Neiva 19251-19259 | 58-61 |

| | | |
|--|-------------------|---------|
| Rio Neiva | 19360-19273 | 60-67 |
| Finca Las Mercedes, Rio Balaillas 19274-19275 | | 66-67 |
| Rio Balaillas 19274-19275 | | 66-67 |
| <u>Meta</u> | | |
| Finca Tama, Rio Balsillas 19276 | | 66-67 |
| Rio Balsillas Valley 19277-19288 | | 68-69 |
| Finca Balsillas 19279-19285 | | 68-71 |
| Rio Balsillas Valley 19286-19291 | | 70-73 |
| Finca Abyssinia 19292 | | 72-73 |
| Finca Playon, Las Mercedes 19293-19294 | | 72-73 |
| Batan 19295-19298 | | 74-75 |
| Rio Neiva Valley ... 19299-19304 | | 74-77 |
| Quebrada Perdiz ... 19305-19312 | | 76-79 |
| Rio Cabrera 19313-19327 | | 80-83 |
| Colombia 19328-19352 | | 82-87 |
| Finca El Playon ... 19353-19371 | | 86-89 |
| Rio Ambica 19372-19390 | | 88-93 |
| Buenavista 19391-19409 | | 94-97 |
| Rio Papamene 19412-19419 | | 98-99 |
| Las Lagartijos 19420-19422 | | 98-101 |
| Uribe 19423-19461 | | 100-107 |
| Rio Duda 19462-19493 | | 108-111 |
| Las Lagartijos..... 19494-19512 | | 110-114 |
| Rio Papamene Valley 19513-19527 | | 114-118 |
| "Cartagena" 19530-19536 | | 118-119 |
| Buenavista 19537-19539 | | 120-121 |
| Colombia-Uribe Trail 19540-19558 | | 120-123 |
| Upper Rio Ambica ... 19559-19567 | | 124-125 |
| Rio Ambica 19568 | | 124-125 |
| Antillas 19569-19579 | | 126-129 |
| above Colombia 19580-19605 | | 128-131 |
| Colombia 19606-19614 | | 132-133 |
| Quebrada Ariari ... 19615-19651 | | 132-139 |
| Quebrada San Blas.. 19652-19662 | | 140-141 |
| Quebrada del Chilcal 19652-19662 | | 142-143 |
| Vitelmo, Bogota Water Works ... 19667-19685 | | 142-145 |

(see next page)
for COLOMBIA

Falls Church, Virginia, U.S.A.

COLOMBIA

Cundinamarca

Bogota, foothills, above 19686-19709..... 146-151
 San Antonio, s. of19710-19721 150-153

Buila

Finca Cedrales19722-19728 152-155
 Finca Yucates19739-19758 126-161
 Rio Fortelacillas Valley 19767-19780 160-163

Meta-Buila

Las Cruces

Summit Cordillera Oriental.19781-19783 164-167
 Rio Fortelacillas hdwaters..19804-19885 164-167
 " " above Yucates..19797-19802 166-169
 " " Valley..... 19803-19804 168-169
 " " below Vega Larga.19805 170-171

Rosa Blanca19806-19808 170-171
 Palacio, hill above 19807-19808 170-171
 19809-19814 170-173
 n. of San Antonio 19815-19817 172-173
 s. of San Antonio 19818-19822 172-173
 Rio Fortelacillas 19825 174-175
 San Antonio 19826 174-175
 s. of San Antonio 19827-19836 176-179

Coll. Rafael Hurtado L..... 184-191

Falls Church, Virginia, U.S.A.



Palmer Church, Virginia, U.S.A.

Julian P. L.

F. R. Fosberg

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404 Edificio La Torre Brusa

1078 Ave. Jiménez de Quesada

Bogotá, Colombia

or R.F.O. #1, Holmes Run Rd.

Falls Church, Virginia, U.S.A.

Oct. 28, 1942

Finca La Felicidad, near
Antigua, Guatemala

A small coffee plantation, ^{na} with 3 trees of Cinchona pubescens (succumbra) about 40 years old. These trees had young buds, more mature buds, flowers, very young fruits, partly grown and almost full-grown fruits, and old dehiscent capsules. The bark was gray and checked into squares, these obvious on branches even as small as 1 cm. thick, and on the main trunk 2-3 cm. across. The bark was at least 1 cm. thick, the cut parts turning reddish brown very rapidly on exposure to air. Color when fresh pinkish straw-color. Leaves glossy above, much like those of Morinda citrifolia.

The coffee was bearing very heavily, the fruits full-sized but only a very few changing color yet. The trees were shaded by ~~the~~ large Grevillea robusta

trees called "gravilla".

The young plants in the seed beds, about 1-2 years old about 1 ft. tall shaded by flat frames made of corn-stalks laid close together and supported on stakes about as tall or a little taller than the tallest plants.

Coffee is a very important crop here. The coffee served at the hotels, good Guatemalan coffee, is

19037

10

Cinchona pubescens Vahl
planted in coffee plantation

Oct. 28, 1942

Fincas La Capitia, 10 km. W. of Antigua Guatemala.

Another coffee plantation said to have some *Cinchona* trees. We did not find them.

19038

Drymaria

disturbed ground, open,
near edge of coffee plantings.

good enough to be drunk black with no cream or sugar.

The corollas of the *Cinchona* have the sutures ~~between the~~ ^{below the sinuses} ~~lobes~~ very obvious in the part of the tube above the attachment of the stamens. In old corollas this is even more marked, the parts even tending to separate.

tree 12 m. tall, ^{trunk} 3-4 dm. thick, leaves glossy above, flowers with tube and lobes rose-pink outside, whitish within, hairs on ~~the~~ margins of recurved lobes white. Odor sweet but not strong. Leaves extremely bitter.

Here the coffee was shaded by the other tree commonly used for this purpose, the *Chalum*, *Inga* sp.

spreading to somewhat ascending. fls. whitish.

1942

Guatemala

Oct. 29, 1942

Finca Las Charcas, near
Guatemala City,
Guatemala.

A large diversified
plantation run by
Sr. y Sra. Rafael Pinol (Hates)

These people are trying
a great number of different
crops, mostly on a rather
extensive experimental
basis.

They have 50 or more
species of Eucalyptus
growing in an experimental
plot, many of them large
~~all~~ trees. Some have
produced a remarkable
growth in 12 years -
I would guess 75 ft. Four
or five species are grown
in quantities large
enough for commercial
utilization as oil sources.
Time was not available
for careful checking of
what these species were
or collecting of specimens.

Pimenta racemosa
was also produced. To
what extent I did not
ascertain.

A large number of

trees of Cinnamomum
camposa were growing,
many ready for production.

Manufacturing apparatus
for extraction of the oil had
been designed and built
by the owners.

A considerable planting
of young Linchoma trees
was doing well. These
were growing in an open
dry sunny field, black
friable well pulverized
soil. Each plant was
surrounded by a shallow
furrow. The weeds were
turned under in the center
of the space between the
rows, making a low
ridge of soil. The
plants, 2 and 4 years
old, about 1 and 2 m.
tall, respectively, bushy,
much branched, were
in full bloom, heavily
loaded with flowers
and young fruit. The
extremely sunny
situation may have
had something to do
with the early abundant
flowering. The plants
were from seeds said to
have been imported from

java. They were extremely variable in leaf shape, lustre and pubescence. The narrow leaved ones had a dull upper surface while the broad and medium ones were shiny. The broad leaved ones varied from glabrous to shortly velutinous. Corolla tube length also varied from less than 1 cm. to 2 cm., color from deep pink to white. The broad leaved plants had ample inflorescences, while the narrow "Ledgeriana" type had very small thyrses.

In the seed beds the plants were allowed to reach a height of 3-5 dm. before transplanting, and some were in flower already.

Seed production was already in operation, and Mrs. Piñol said they were going to attempt selection of good seed strains.

Several interesting nursery practices were in evidence. A split flower-pot, made in the pottery works right on the finca, was used for young plants to be set

out. The two halves were bound together with cords, and when the transplanting was done, the cords were loosened and the root-system and soil could be removed intact.

Experimentation was being carried on with use of the hollow ~~pot~~ bamboo-like joints of the stem of a tree-dahlia, *Dahlia* sp. for pots. These are up to 5-6 cm. in diameter and 1-2 dm. long, cut with the node at the bottom. When the seedling grown in the section was ready to transplant the whole pot was set in the ground. Within 3 months the pot had rotted away, adding humus to the ground. The dahlia is a native species growing right on the finca.

48

Oct. 30, 1942 Barranca just north
of Guatemala City

Guatemala

Flat top of erosion remnant
between two arms of barranca.
rather dry fine soil, open
grassy meadow surrounded
by oak trees on edges of cliffs.

19039 Borreria

common in weedy spots

40 Lithospermum

scattered in ~~the~~ grassy places

41 Polygala

shaded spot among shrubs

42 Polygala

open weedy place

43 ~~labiate~~

among shrubs and tall ~~herbs~~ herbs

44

shaded place

45 Aplatismenus

shaded place

46 Salvia

among shrubs

47 Hydrocotyle

shaded under oaks on edge
of barranca.

48

shaded under oaks on edge
of barranca

49 Quercus

abundant on edges and walls
of barranca, one of principal components
of vegetation.

A conspicuous feature ~~was~~
was corn planted on all except
the truly vertical walls
of the barranca. Some of
the fields could not have
been more than 10°-15° from vertical.
A native said they produced
3 crops a year.

flowers white.

flowers white

flowers purple.

flowers deep violet

~~the~~ corolla blue-lavender,
herbage aromatic.

weakly ascending or
reclining
aromatic herb 2 m. tall,
corolla deep ~~mauve~~ ^{crimson} purple
inflorescences erect.

creeping, flowers greenish,
petals pale, fruits geminate,
spherical.
tree 6 m. tall, sterile,
none seen with fruit.

- 19050 *Carex*
fairly common in open places
- 51 *Quercus*
abundant on edges and walls
of barranca, one of principal
components of vegetation.
- 52
shade of oaks on edge of
barranca.
- 53 *Bouvardia*
occasional shade of oaks, on edge of barranca
- 54 *Cuscuta*
common in bushy or wooded
spots.
- steep walls of barranca
- 55
open place on cliff
- 56 *Borreria*
in trail
- 57 *Cattleya lobata*
common on cliff
- 58 *Borreria*
in trail on cliff
- 59 *Cuphea*
under trees on cliff

tufts, culms somewhat
spreading.

tree 3 m. tall, upper
leaf surface dark green,
lower ~~is~~ glaucous.

shrub 1 m. tall, stems
green, fruit reddish.
corollas vermillion,
basal 3 mm. of tube hirsute
within.

spreading herb, flowers
violet, paler in sun
than in shade.

spreading shrub, several
meters long, branchlets
tending to be in one plane, but
not always so, flower
spikes ~~erect~~ pendent,
corollas white.

flower brilliant magenta,
sepals paler, lip emarginate,
plants varying with exposure
or shade, up to 1 m. tall,
stiff, leaves stiff.
corollas white

suffrutescent, sprawling,
up to 1 m. long, branches erect,
upper petals erect, deep maroon,
caducous, lower 3 scarlet, tiny, calyx tube scarlet.

19060 *Centaurium*

shaded ledges on cliff

L 61 *Lobelia Diastatea micrantha* (HBK) McV.
shaded ledges on cliff det. McV.Oct. 31, 1942 the airport at
San Salvador, El SalvadorL 62 *Drymaria*

weed in recently cultivated garden.

74 Nov. 3, 1942 Montserrat, above
Bogotá, Cundinamarca, ColombiaWet brushy vegetation
largely *Eucaceae* and *Melastomaceae*
on mountaintop, somewhat
grazed.L 63 *Miconia parvifolia* Cogn. det. T. J. Wurdack 1969

around a small hummock, rare

64 ~~*Hebe*~~ *Vaccinium*

an abundant plant in

limb of corolla pink, tube white.

corolla blue-violet, turning
purple with wilting.spreading herb, rooting
at nodes; the deflexed
fruiting pedicels very easily
detached and quite viscid,
adhering ~~and~~ to anything
and carrying the dehiscing
or nearly ripe ovary
with it.

prostrate, flowers white.

shrub 1-2 m. tall, flowers
waxy-red, corolla lobes
paler, greenish red. leaves
quite variable in different
individuals. Leaves, ~~and~~
flowers and inflorescence stiff.

19065

Gaultheria cordifolia HBK. (rel aff.)
occasional

L 66

Cestrum

occasional ~~common~~

L 67

Galium

inconspicuous in hummocks

L 68

Galium hypocarpium

~~vine-like, climbing in shrubs~~ occasional

L 69

Hypericum mexicanum var. *platyphyllum*
occasional pl. Cuatr.

L 70

Peperomia gaultheria

occasional

L 71

Brachyotum strigosum (L.f.) Triana
common

L 72

Hedyotis (*Acrotyphyllum*)

common

L 73

Befaria phyllipiaefolia Benth.
occasional 11.9.42

L 74

Centropogon lephocampylus columnar
common (L.f.) D. Don

flowers scarlet, fruit black,
leaves stiff, noticeably
reticulate and sometimes
reddish beneath.

up to 3 dm. tall, flowers
dark purple outside, pale greenish
within, lobes of corolla patent.
prostrate, moss-like.

flowers + fruit greenish.

vine-like, climbing
to 1 m. in shrubs, fruits
bright orange, fleshy.

flowers greenish.

erect, to 2-3 dm., very
viscous, leaves stiff.

flowers yellow

shrub 5 m. tall, flowers

white, fruit bluish tinged.

erect, to 4-5 dm. tall, flowers
pendent, calyx scarlet,
corolla dark purple.

stiff, erect shrub, to 0.5 m. tall,

leaves white beneath,

corolla 4 lobed, white,

purplish outside, as are buds.

corolla lobes patent and

somewhat recurved toward

apex.

low shrub, to 2 dm. tall,

bushy, corollas cylindric,

crimson. leaves white beneath.

erect shrub 0.5 m. tall (others seen
up to 1 m.), leaves tawny beneath,
corolla orange, lobes dark greenish.

- 19075 *Hypericum brathys* ^{Smith} ~~Bar.~~
common
- 76 *Muehlenbeckia tamnifolia* HBK.
occasional
- 77 *Cavendishia cordifolia* (HBK.) Hoer.
occasional
- 78 ~~Eupatorium~~ *Baccharis*
abundant on slopes
- 79 *Miconia ligustrina* (Sw.) T.
abundant, a conspicuous
part of vegetation
- 80 *Baccharis*
in eroded place
- 81 *Echeveria bicolor* (HBK.) Walt.
~~top~~ just back of top of cliff,
~~on edge~~
- 82 ~~Eupatorium~~ *Stevia*
just back of top of cliff
- 83 *Plantago linearis* HBK. var. *agrostophylla* (Dum.) Pilg.
in small hummock
- 84 *Plantago*
common on slopes

- erect shrub, to 3-4 dm. tall,
usually smaller, fls. yellow.
- vine, climbing over bushes,
fruit black when ripe, fleshy.
- shrub 1.5 m. tall, leaves
glaucous beneath, bracts
reddish, translucent,
corolla red, ^{greenish} fruit red when
ripe.
- shrub 2 m. tall, flowers
dirty white.
- shrub 2 m. tall, flowers
and fruit white.
- flowers whitish, shrub
2 m. tall, leaves aromatic when broken,
stems branching, spreading
~~leaves~~ thick, leaves
very fleshy, shiny,
easily detached, racemes
ascending, corolla deep
orange outside, yellowish
within, stiff.
- shrub 1.5 m. tall, flowers
white.
- caespitose
- shrubs 2 m. tall, leaves
shiny, paler beneath,
flowers deep magenta,
conspicuous, buds
glutinous.

Nov. 9, 1942 Highway from Bogotá to Tunja. Had no time to collect any plants. Much of the trip was through the Sabana, a long level valley. The road follows the river part way, and the foot of the hills part way. Wheat seems to be the principal crop, with potatoes (papas) secondary. The potatoes have purple flowers. There are no forests in the Sabana, nor on the bordering hills. *Eucalyptus globulus* is extensively planted, the bark being used for tanning and the wood for posts.

Near the northeast end of the valley are a great many small coal mines, simple shafts dug into the rolling hills. The coal is low grade. Might be very worth-while as a fossil collecting ground.

Between Villa Plinzon and Tunja ~~is~~ are hills with interesting brushy vegetation and scrubby forest. Much of it has been destroyed by cultivation. The top 2-3 dm. of soil is

amazingly black - almost as though mixed with coal. Wheat, corn, & potatoes seem to do very well.

In places they are planted on ~~an~~ amazingly steep slopes. Near Tunja the erosion has proceeded to a serious extent. The sides of the ravine or valley are deeply gullied.

Nov. 10, 1942 - Summit between Belén and Susacón, Boyacá about 11,000 ft.

Occasional habitations even at this altitude. Wheat and potatoes are cultivated. *Eucalyptus globulus* still survives here, though not numerous.

Rodriguez says this is a weakly developed páramo. A large species of *Espeletia* is abundant and I took several photos. Small bushy *Wernmannia* trees, 2-3 m. tall are fairly common.

Rio Mangua

9 Nov. 11, 1942 - Chitaga just above
Bata, ^{36 km. 15° S. of E. of Pampelona,} Norte de Santander, 1230 m.
(altimeter reading 3900 ft.)
Mun. de Toledo

Got two small samples of
corn seed to send to Anderson.
One was white, the other yellow.
Got them from a store.

Most of the level or even
reasonably sloping ground
here is in coffee, shaded
by *Inga* sp., a dense, flat
topped tree.

Climbed down to the edge
of the river, where there were
great moss-covered rocks,
with *Peperomia*, *Piper*, *Tradescantia*,
and numerous other plants
growing under the trees.

Collected a giant *Panicum* and
a *Trichomanes*.

- L 19035 *Trichomanes hymenoides* Hedw. det. G. J. G. 1944
on a moss-covered rock near
river, but not at present splashed.
L 36 ~~*Pleurozium*~~ *Lecanella divaricata*?
several m. above edge of
water on rocky slope.

Thallus-like fronds semi
prostrate on rock.

clump of a number of
immense culms, 5-6 m. tall,
bushy toward top.
Local name "chusque"

6/2

Nov. 141 - Cleared slope,
 *grown up to bushes, *Pteridium*
 and grass - the bushes
 mostly *Eriaceae* and
Melastomaceae, the grass
 mostly *Melinis minutiflora*.
 Toward top a great deal of
Rynchospora.

altimeter reading 5700 ft.

19087 *Melinis minutiflora*
 open pasture

6000 ft.

88 *Weinmannia*
 bushy slope, dominant both
 in shrub stage and
 in forest.

89 *Myrsine (bapanea)*
 bushy slope

90 *Coccyprselum*
 under bushes in grass

6300 ft.

91 *Baccharis*
 bushy slope

92 *Gaultheria*
 bushy slope

93 *Befaria*
 bushy slope

94 *Pteridium aquilinum*
 slope covered with ferns,
 sedges and small bushes

Rio Valagosa drainage,
~~Ridge ridge between Rio~~
 w. of mouth of Rio
 Colorado. Cor. Chucarima,
 Mun. de Chitagá,
 Norte de Santander
 35 km. s.e. by r. of Pamplona

viscid, with a sweetish
 odor, infl. purplish red.
 [considered one of the best
 forage grasses in Colombia]
 slender shrub 2 m. tall.
 "cascara" used for tanning
 shrub 2 m. tall, bushy,
 fruit black, flowers whitish,
 stigma fleshy, translucent.
 flowers & fruits mixed.
 prostrate herb, flowers
 lavender, fruits pyriform,
 fleshy, many seeded, bright
 blue.

bush 2 m. tall, fls. whitish.
 Very abundant in vegetation.
 bush 2 m. tall, very abundant.
 racemes somewhat drooping,
 red, fruits black.
 bush 1.5 m. tall, abundant;
 flowers rose-pink.
 up to 1 m. tall, one of the
 dominant plants.

- 19095 *Gleichenia*
edge of trail on brushy slope.
- 96 *Chaetolepis microphylla* (Benth.) Mez.
in small openings on brushy slope.
- 97 *Borreria* 6500 ft.
grass and fern covered slope
- 98 *Escremia coarctata* (R. & P.) Bahl.
grass + fern covered slope
- 99
in grass on ridge
- 19100 *Rhynchospora*
grassy ridge
- 01 *Borreria*
grassy ridge, common

Nov. 14 - Finca Los Alpes, on
Quebrada el Cedro (Los Indios), ~~the~~ affluent
of Rio Valegría, ~~Tracción de Carvajal~~
Norte del Santander

5700 ft.

- 02 *Cinchona pubescens* Vahl
wall of ravine in bottom
of valley
- 03 *Helioscarpus popayanensis* HBK.
~~the~~ edge of yard in cultivated
land.
- 04 *Sambucus*
in yard of finca.

81% C.
C. 0.47%
B. 0.1%

Anal. Ballis.

TC 0.42%

2-3 dm. tall.

flowers yellow.

fls. whitish.

small loose clumps,
fls. lavender blue (stamens
yellow)

fls. pink.

one of dominant plants
near top of ridge. small
clumps.

flowers white.

Large tree, ^{some of} leaves at top
red, bark whitish, very
bitter. leaves collected are
large shade leaves.
tree 8 m. tall, spreading,
fruit mature "Bales"

small tree, 3 m. tall, flowers
white. "sauc" infusion
of fresh flowers - used for
fever or pneumonia in
infants and for liver trouble.
said to be native of country.

Bought a number of ears of corn here out of a pile in the man's shed. A considerable number of different looking forms were evident. ~~There~~ I picked out a fair representation.

#7 Cob 21.5 cm. l., 2.3 cm. thick, cylindric. 10 rows bracts dark purple at base.

#8 Cob 20 cm. long, 2 cm. in diam. cylindric. bracts white. 8 rows.

Nov. 15

~~Rio~~ Rio Colorado, just above ~~the~~ confluence with Rio Valeria. ~~Along~~ ^{Along} Chucuruma, Norte de Santander

alt reading 5300 ft.

mosay log in woods along small creek.

Carvajal
Chucuruma #1 Cob 19 cm. long, 3 cm. thick, ^{cylindric} bracts tinged with purple. 14 rows of kernels

#2 Cob 19 cm. long, 3.5 cm. thick, ^{tapering} at base. bracts white. 11 rows.

#3 Cob 15 cm. long, 4 cm. thick at base, tapering. 12 rows. bracts white

#4 Cob 15.5 cm. long, 3.5 cm. thick at base, tapering. 12 rows at base, irregularly spiral. bracts white.

#5 Cob 20 cm. long, 3.5 cm. thick, only slightly tapering. bracts slightly tinged with pink. 14 rows.

#6 Cob 20 cm. long 4 cm. thick at base, tapering. 16 rows. bracts very slightly pinkish

creeping

monde
chilaga

19105

Nov. 15

slope W. of lower part of
Rio Colorado just above ~~its~~ confluence
with Rio Valera, Cor. Chuscarima, Mun. de
Chitaga, Norte de Santander, Alt. reading 6000 ft.

~~Thick woods~~ partly cleared slope.

19106

Hedyosmum

thick woods along ravine

2 07

Juncus

wet place in trail

08

Eleocharis

wet place in trail

09

Xyris

swampy place in clearing

10

Utricularia

wet mud & wet white sand
in clearing

11

Lymbolanthus

edge of thick woods

12

Utricularia

among brush in clearing,
not especially damp

13

on mossy tree trunk

14

edge of wooded ravine

15

edge of wooded ravine
abundant.

Tree 6 m. tall, nodes
much enlarged. fruit
very fleshy, white, achenes
in pits.
tufts.

spreading tufts.

tufts, flowers yellow.

leaves lance-linear,
flowers yellow.

shrub 2 m. tall, fruit
with a strong apple odor.

leaves peltate, flowers
lavender.

prostrate

tree 6 m. tall, fruit green.

small tree, 8 m. tall, fls.
reddish.

19112 a Trichomanes

- 19116 *Ladenbergia* ~~in~~
in densely wooded ravine,
fairly abundant.

26 Nov. 15

E. slope of valley of quebrada
el Cedro (Los Indios), toward
head, Finca de Carvajal, Mun. de Chitago,
Norte de Santander A.R. 8000 ft.

Thick jungle

19117

Ladenbergia

19118

slope
19 *Polypodium* (*Xiphopteris*) *truncicola* (Klotzsch)
~~Polypodium~~ det. D.B. Lellinger 2/5/69

near top of 15 m. tree (19112)

20

Polypodium

near top of 15 m. tree (19112)

21

Cinchona

22

Palicourea

23

Palicourea

34

Nov. 14 - Hills e. of Rio Valegrá e. of
Quebrada Valegrá, ^{Com.} ~~Barr.~~ Chucurama,
Mun. de Chitago, Norte de Santander
Tall forest being felled, gently
sloping ground. about 6500 ft.

24

25

And. Bellis.

T.C. 0%

~~Tree~~ Spreading tree about
15 m. tall, wood very
hard and strong, flowers
white, fragrant. Leaves
dark green, very revolute.

fruit immature
tree 15 m. tall, with an
oily odor when broken.

pendent.

small tree 7 m. tall,
"quina blanca" or "quina tina".
bark rather thin, white inside.
scandent shrub 3-4 m.
tall, resting on trees. fls.
greenish, fruit blue.
Tree 10 m. tall, fls. yellowish
green, fruit immature.

small tree.
shrub

19120

27 *Hippotis albiflora* Karst.28 ~~Chloranthus~~

29

30

31 *Aphelandra*32 *Stromanthe tonkeat* (Aubl.) Eichl.

33

open bluff, burned some time before.

Nov. 16 same but below quebrada Valsequia.

Ravine on high open rocky summit

34 *Cinchona pubescens* Vahl35 *Ladenbergia*

In deep wooded wet ravine

Nov. 16 Hills above Bata, Valley of Rio

36 *Palicourea*

partly wooded ridge

5500 ft.

g.c. 0.98
c. 0.68
g. 0.5

Anal. Bellis

T.C. 1.5%

small tree, flowers yellowish green, fruit immature.

small tree, corolla white

small tree, flowers green, fruit immature.

vine, fruit immature.

shrub, flowers bright purple.

shrub 2-3 m. tall, flowers scarlet, bracts reddish green.

shrub with enlarged nodes, fruit fleshy, orange.

herb 1 m. long, weak, flowers scarlet.

stump sprouts 4-5 m. tall, 7-9 cm. thick, from old felled tree, some leaves red, flowers pink, fragrant.

slender tree about 7 m. tall, flowers white

shrub 3-4 m. tall, thyrse red, fls. yellow

10 Nov. 16 Bata, Mun. de Toledo,
Rio ~~San Juan~~, Norte de Santander
4000 ft.

Ravines above River

19137

steep slope

4 38 *Jussiaea peruviana* L.

wet place

3 39 *Jussiaea suffruticosa* L.

wet place

3 Nov. 18 ~~just below~~ mouth of quebrada
Guemada, Fracción Cornejo de
Mun. de Chitaga, 40 km. s.s.e. Pamplona,
Norte de Santander 6400 ft.

steep grazed hillside

40 *Ranunculus*
common

8 Nov. 19 Rio Valegría, just above
mouth of quebrada Guemada,
Fracción Carvajal de Mun. de
Chitaga, 40 km. s.s.e. Pamplona,
~~Norte de Santander~~ 6400 ft.

dry brushy ~~bluffs~~ bluff
above the river

41 *Castilleja*
occasional

42 *Tournefortia*
~~grazed~~ bench

"flora de Santander"
shrub 3 m. tall, flowers
magenta, anthers deciduous.
~~shrub~~ subshrub, up to 1.5 m.
tall, flowers yellow
herb up to 1 m. tall, flowers
yellow.

fls. bright yellow

bracts red, flowers yellow
herb up to 1 m. long, weak.
spreading tree 6-8 m. tall;
"quesito", the tasteless
fleshy white fruits eaten
leaves of water sprout
much larger, ternate.

- 31 Nov. 13 - very steep slopes on
w. end of Preciosas, Rio Valeria
above mouth of quebrada Quemado,
Fraccion de Carvajal de Mun. de
Chitagá, 40 km. s. s. e. Pamplona,
Norte de Santander 7750-8100 ft.
moist, somewhat decadent
forest on very steep rocky
slope, openings filled with
dense brakes of *Chusquea* (?) sp.
orchid

19143

99 *Begonia*105 *Polypodium*

on log

106 *Cephaelis axillaris*
in open understory,47 *Palicourea*43 *Cinchona pubescens* Vahl
shade49 *Cinchona pubescens* Vahl
edge of opening

anal. ballis.

| | | |
|----------------|---------------|---------------------|
| Trunk g+c 0.5% | limb g+c 1.1% | limb TC 2.1% |
| ci 1.4% | ci 0.9% | Trunk TC 1.9%, 2.1% |
| gui 0.1% | | |

50

climbing on *Cinchona pubescens*51 *Cinchona officinalis*

| | |
|--------|-------------|
| Qa 0.5 | g+c 6.6% |
| Ed 0.1 | (2504 7.7%) |
| | ci 1.6% |
| | gui 0.1% |

anal. ballis.
→ T.C. 8.2%
no g.
mostly c.

All of the slopes that
are gentle enough (70°) or less,
to hold any soil are cleared.
Forests persist on the cliffs
and in extremely steep
headwaters of small
quebradas. In these in
this vicinity, there seems
to be much *Cinchona*. Two
(over)

fl. greenish yellow,
pseudobulbs terete
- woody vine, flowers
white; said to be used
- to treat pneumonia.

shrub 1-2 m. tall,
stem green, fls. white,
fruits blue.
- small tree, flowers yellow,
waxy.

seedling or sprout,
leaves + stipules very large,
stipules recurved.

Tree 15 m. tall, fls. pink,
some leaves pink. Some
inflorescences very large.
(bark sample, both from trunk
- and branches.) "Quina tuna"
vine, fls. white.

stipules
recurved

tree, sterile, leaves green
or very sl. reddish on veins. "Quina blanca"
(bark sample)

kinds as all the quinceros here know about and all that we saw. The "quina blanca" here is the same as that on quebrada de Cedro. The "quina tuna" here is practically the same as the "quina amarilla" of Qu. de Cedro. The only noticeable difference is that this one has recurved stipules. The trees observed here are quite uniform. At 7750-8000 ft. the "quina tuna" is quite abundant, scattered all through the forest. Seedlings and

6
10 m. above
Chitaga

19152

Nov. 17, - Samaria, on Rio Chitaga
at mouth of quebrada Samaria, Mun.
de Chitaga, 34 km. s. of Pamplona,
Norte de Santander 8500 ft.
Nertera granadensis (L.f.) Druce
mossy bank a few m. above stream.

28

Nov. 19 Bosque de
Aguadas, ^{tracción} Carretera de Mun.
Chitaga, 36 km. s. of Pamplona.
Santander del Norte 8500 ft.
53 *Cinchona officinalis* L.
moist woods.

ci 2.3%
qui 2

sprouts are abundant. The leaves of these are larger, but the stipules are reflexed.

Pieces of branch on the ground send up sprouts as do the barked stumps. A ~~barked~~ barked log showed areas of green, as though ~~spontaneous~~ metabolism was still going on where areas of cambium remain. A couple of tons of bark have been taken out two months ago.

creeping, fls. pale green, both 4 & 5
merous on same plant, fruit
slightly subglobose, soft, scarlet,
more so above, with a slightly
mottled appearance. Corolla lobes recurved.

Anal. Bellea

g + c 3.3%

T.C. 5.6%

From stump sprouts. (Brought
in by guide) (Bark sample)
Leaves clear green, except on some
twigs the petiole & lower midrib red.

19154

moist woods

55

Palicourea

moist woods

56

~~moist woods~~

56

Ladenbergia

moist woods

57

Cephaelis axillaris

moist woods

14

Nov. 19 - ~~High~~ ~~bristly~~ Ridge n.
of Quebrado Quemada, Fracción
Conejo de Mun. de Chitaga,
36 km. e. of a. of Pamplona, Nte de
Santander 9500 ft.

high brushy ridge

58

Perinettia prostrata var. *pentlandii* (DC.) Gleason

59

Paepalanthus schlimmii Koenig

60

Nertera granadensis

on ground under bushes

61

Hedyotis

tree 15 km. tall, fls. whitish

shrub 2 m. tall, fruit
green.~~shrub with green stems,
flowers white~~tree 15 m. tall, fls. white,
very fragrant, fruits both
green and dehiscent.shrub with green stems
white flowers.dwarf shrub 2-3 m. tall,
fls. white, fruit black,
fleshy, said to be inedible.~~translucent~~ stem
up to 3 dm. long.prostrate, forming a mat,
berries coral, translucent,

subglobose.

shrub up to 1 m. tall, fls. white.

15

Nov. 19 - Cordillera de Hoya Grande
head of Quebrada Guemada,

Norte de Santander

11000 ft.

high rocky summit ridge.

19162

Vaccinium

crevices and ledges,

L

63

Hedyotis

open ridge

L

64

Oxalis

crevices

L

65

Blechnum

just below crest

L

66

Calceolaria microbefaria Kraenzl. subsp. *microbefaria*

det T. Nolan
1982

ledges below crest

L

67

Castilleja

ledges below crest.

L

68

Hedyotis

open windswept slope

5

Nov 19 - ^{at mouth of quebrada Larnaria,} Samaria, valley of
Rio Chitaga 10 km. above Chitaga.
Mun. de Chitaga, 34 km. s. of Pauplona
Norte de Santander

roadside

7500 ft.

L

69

Opuntia

forming a dense mat, fls.
red.

shrub 5 dm. tall, fls.

white.

fls. reddish yellow

diminutive tree fern, with
trunk up to 1.5 m. tall. Has
appearance of *Lycas*
revoluta.

flowers sulfur yellow,
lower lip inflated.

calyx red with yellow
edg.

prostrate, forming a mat that
clings very close to the ground,
fls. white, turning purplish.
(quite distinct in appearance
from the looser similar
plant that is common in
the region.)

tall, semisucculent shrub,
involucres dark purple, fls. white.
branches with long spines, large covered trunk

19170

Climbing in tree by roadside

86

Nov. 19, 1942 Quebrada Llanos,
Mun. de Chitaga
Norte de Santander

9300-9500 ft.

Open gentle slope, somewhat
over-grazed, rising water
here and there, white sand
with some humus.

71 *Lobelia tenera*72 *Xyris*

73

clump of bushes and trees

74 *Eriocaulon*75 *Gaultheria*76 *Halenia*
abundant77 *Hypericum*

78

edge of clump of trees

scandent shrub, fls.
bright red.

fls. purple with greenish white
center, varying in intensity
of color. Rare here, commoner
on other side of mountain
at ^{about} same alt. Not seen
except in white sand.

in dense grass tussocks
small tree 5 m. tall, leaves
stiff, fruit yellow, aril of
seed ~~red~~ scarlet.

small group of rosettes,
underground stems
branching. Peduncle flat
dwarf shrub 3 dm. tall,
berries white with a strong
purple tinge.
flowers cream-white to greenish

shrub up to 7 dm. tall, fls. yellow
short vine, 1 m. long, leaves
glaucous beneath, flowers
vermillion

19178 *Senecio*

same loc.

rocky crest of small ridge 9800 ft.

80

81 *Alchemilla*82 *Viola*

83

abundant in open places from
8500 to 11000 ft.

84

Lycopodium

85

86

Bartsia

10300 - 10500 ft.

rocky ledge on ridge

87

Blechnum

rocky ledge on ridge, common

88

Asplenium

rocky ledge on ridge

89

*Hedyotis*on small tussocks in open springy
placelowest altitude observed,
much more abundant
higher up. Shrub up to
1 m. tall, leaves terete, with
a resinous odor when broken,
fls. yellow.

erect, rays white, disk yellowish

prostrate
prostrate, mat-forming, ~~has~~
flowers white with purple
markings on lower petal.
Cleistogamous flowers down
in mat.densely pulvinate, length
of peduncle varies in different
colonies.creeping, fruiting branches
and secondary vegetative
branches erect.

pulvinate

stem & fls. purplish.

crowds erect, stiff

erect shrub, 5 m. tall, fruiting

forming a loose mat, the ~~stem~~
leaves on the erect secondary
stems conspicuously decussate.
fls. purplish.

19190 *Miconia*
scattered brush on slope

91 *Gentiana*
muddy pasture

92
low rocks sticking up in muddy
springy pasture

10500-10800 ft.

93 *Gaultheria*
small patch of woods in
shallow ravine.

94
brushy pasture

95 *Vaccinium*
small patch of woods in
shallow ravine

96 *Hedyotis*
open grazed hillside, abundant
throughout region at altitudes
over 9000 ft.

97 *Castilleja*
somewhat brushy hillside

98 *Cestrum*
somewhat brushy hillside

99 *Campyloneuron*
somewhat brushy slope,
around rocks.

19200 *Polypodium* *Campyloneuron* Fee det. M. Meyer
hanging from isolated tree

box-like
dense, rounded bush 2 m. tall,
flowers white.
flowers pale purplish

flowers white inside,
pinkish outside.

Tree 5 m. tall, fls. white

shrub 1 m. tall, heads
white, herbage very
resinous - aromatic when broken.

shrub 1.5 m. tall, flowers
scarlet, waxy.
prostrate, forming loose
mats, leaves decussate,
flowers white or somewhat
purplish, especially outside.
calyx scarlet, slightly
edged with yellow, galea
red below, green above.

small shrub 0.4 m. tall
fruits black, fleshy, fls.
dark purple outside, green within.
mat-forming, petals
white, not cleft. styles 3

rhizome glaucous-green

19201

Hypericum

somewhat brushy slope

79

Vitelma,
Nov. 29 - Hill above Bogotá Water Works,
San Cristobal, just s. of Bogotá,
Cundinamarca 9000 ft. ^{gently sloping}
small paramo with brushy
ravines. *Espelletia grandiflora*
and *E. corymbosa* abundant

2 E. Schumacher
R. S. Schumacher
(sister of him)

02

Hedyotis

common

03

side of ravine

04

rocky ledges among brush on
side of ravine

05

Eupatorium

common

06

brushy side of ravine

07

Gaultheria

rare

08

Bartsia

one small colony

09

Castilleja

scattered

n. de Sant. - Cundinamarca

shrub 1.5 m. tall (others
observed to form trees 3-4 m.
tall), flowers bright
yellow. leaves decussate.

shrub up to 1 m. tall, leaves
stiff, white beneath,
flowers white, lobes
purplish outside toward tip.
shrub 2 m. tall, fruits
blackish.

imbricate bracts ^{rose} purple, sepals
and petals yellow, lip
whitish or pinkish with
a ~~large~~ maroon spot in
the center below.

depressed shrub, scapes
erect, fls. lavender.
shrub 2 m. tall, fls. yellow

depressed shrub, inflorescence
and fls. red.

plant purplish, esp. the inflorescence
+ calyx, corolla yellowish green.
bracts scarlet distally, calyx
scarlet, corolla green with
red edging toward tip.

- 19200 *Nertera granadensis* (L.f.) Druce
one small cushion in open place
- 4 11 *Cereus*
open slope, scattered bushes
- 4 12 *Graptophyllum*
large colony on eroded place
- 5 13 *Hypericum*
occasional and localized
- 5 14 *Vaccinium*
common
- 8 15 *Anagallis*
rare
- 2 16 *Veronica*
rare
- 5 17 *Paepalanthus*
common
- 4 18 *Lycopodium*
common
- 4 19 *Lycopodium*
common
- 4 20 *Hypericum*
scattered

Nov. 30 - Magdalena Valley,
Girardot to Neiva, Tolima and Huila.

Flat warm country with
thorn forest alternating with
pastures, apparently rather
dry except in low spots near
the river. Arbrescent *Cereus* spp.

flowers green

shrub 1.5 m. tall, flowers
whitish, leaves sticky
aromatic, slightly woody
and decumbent at base,
heads yellowish.
flowers yellow

shrub 1 m. tall, corolla
red, waxy, ^{potentially} fruit immature
shrub 1.5 m. tall, flowers
white

dwarf shrub, flowers
purple.

cushionlike clumps, flowers
white, peduncles somewhat
flattened.

branchlets compressed,
spikes erect, cylindric,
plant trailing up to ~~1 m.~~
1 m. long. branches & spikes
erect.

erect, flowers yellow

~~at~~ common, thorny legumes
abundant. Croton abundant,
especially in overgrazed areas.
Some of dry low hills badly
over-grazed and eroded.
River very muddy.

Population rather sparse
in many places.

7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
19221 *Gossypium* ~~hibernum~~
in garden

44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 4.5 km.
s. of Neiva, Huila 2750 ft.

Brushy river bluff, with
seeps of water.

22 *Wigandia*
cut bank above road

23 *Orypetalum cordifolium* (Vent.) Schult.
det. O. R. Howell

24 *Aspidosperma cuspa* (HBK) S.F. Blake ex Piller
det. Steve Smith, 1985

25 *...*

26 *...*

27 *...*

28 *Porophyllum nuderale*

29 *Tournefortia*

30 *...*

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

CALIFORNIA ACADEMY OF SCIENCES
Weeds of California

Brachypodium distachyon (L.) Beauv.

Locally common on open grassy
hillsides, Tiburon, Marin County.

(See Leaflet, West. Bot. 5: 69, 188;
Hitchcock Manual, ed. 2, fig. 42.)

John Thomas Howell

23186

May 21, 1947

all, with prickly
flowers lavender,
lactiferous,
greenish yellow,
white.
tall, leaves
rich green,
green, lobes yellow,
fls. purple-black.
tall, fls. lavender,
lined with purple,
root white.
tall, stems
red prickles.

fls. purple-black.
malodorous herb up to 1 m.
tall, ~~herb~~ involucre purple,
fls. yellowish, leaves
somewhat glaucous.
slender shrub 1 m. tall,
ripe fruits red, fresh.
vine climbing on shrubs,
petals bright yellow.

- 7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
- 19221 *Gossypium* ~~arborescens~~
in garden
- 44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 40 km.
s. of Neiva, Huila 2750 ft.
Brushy river bluff, with
seeps of water.
- 22 *Wigandia*
cut bar
- 23 *Aspidosperma*
- 24 *Aspidosperma*
- 25 *Aspidosperma*
- 26 *Aspidosperma*
- 27 *Aspidosperma*
- 28 *Porophyllum*
- 29 *Tournefortia*
- 30 *Tournefortia*

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

- shrub 2 m. tall, with prickly
hairs, flowers lavender.
twining vine, lactiferous,
~~fls.~~ corolla greenish yellow.
corona bifid, white.
- shrub 3 m. tall, leaves
pale yellowish green.
corolla tube green, lobes yellow.
- shrub 1.5 m., fls. purple-black.
herb 1 m. tall, fls. lavender,
throat dotted with purple.
lip with throat white.
- shrub 3 m. tall, stems
with recurved prickles.
fls. purple-black.
- malodorous herb up to 1 m.
tall, ~~fls.~~ involucre purple,
fls. yellowish, leaves
somewhat glaucous.
- slender shrub 1 m. tall,
ripe fruits red, fresh.
vine climbing on shrubs,
petals bright yellow.

- 7 Dec. 2 - Neiva, bank of
Rio Magdalena, Huila
- 19221 *Gossypium* ~~arborescens~~
in garden
- 44 Dec. 3 - La Junta, 6 km. w. of Algeciras
(San Juanito), on Rio Neiva. 40 km.
s. of Neiva, Huila 2750 ft.
Brushy river bluff, with
seeps of water.
- 22 *Wigandia*
cut bank above road
- 23 *Oxyptalum cordifolium* (Vent.) Schult.
det. O. R. Hallenbeck
- 24 *Aspidosperma cuspa* (HBK) S.F. Blake ex Pichon
det. Steve Smith, 1985
- 25 *Desmodium*
- 26 *Desmodium*
- 27 *Desmodium*
- 28 *Porophyllum nuderale*
- 29 *Tournefortia*
- 30 *Passiflora*

tree 5 m. tall, flowers pale
yellow, flowering and fruiting
at same time. (seed sample)

- shrub 2 m. tall, with prickly
hairs, flowers lavender
twining vine, lactiferous,
~~fls.~~ corolla greenish yellow.
corona bifid, white.
- shrub 3 m. tall, leaves
pale yellowish green.
corolla tube green, lobes yellow.
- shrub 1.5 m., fls. purple-black.
- herb 1 m. tall, fls. lavender
throat dotted with purple.
- lip with throat white.
- shrub 3 m. tall, stems
with recurved prickles.
- fls. purple-black.
- malodorous herb up to 1 m.
tall, ~~fls.~~ involucre purple,
fls. yellowish, leaves
somewhat glaucous.
- slender shrub 1 m. tall,
- ~~fls.~~ ripe fruits red, fresh.
vine climbing on shrubs,
petals bright yellow.

- 19231 *Helaginella*
on moist ground under bushes
- 32 *Citharexylum*
- 33 *Aneimia*
wet ground under bushes
- 34 *Petraca*
- 43 *Algeciras* (San Juanito), 40 km. s. of
Nirva, Huila (7400 ft.) 1052 m
- 35 *Chlorophora tinctoria*
Cultivated in yard.
- gently sloping pasture with
several small streams
and with scattered trees
- 36 *Cyperus*
- 37 *Lapindus*
- 38 *Cupatorium*
rocky stream bank
- 39 *rocky stream bank*

prostrate, forming a
thin carpet on earth ledges.
shrub 2 m. tall, ripe fruits
scarlet.

shrub 2 m. tall, calyx bright
lavender-purple.

Tree 10 m. tall, sterile,
branches spiny, leaves
brittle, latex used for
an anesthetic when pulling teeth.
"dinde" (local)

heads white, plants in
small tufts
rounded spreading tree,
flowers white, fruits
yellowish or greenish.
pulp used for soaps, seed
by children for marbles
or to make rosaries.
"Chumbimbo" acc. Rodriguez
"Chambimbo" local.
herb 3-10 dm. tall, fls. white.

vine, very lactiferous
stems green, fls. white.

- 1940 *Paspalum*
 41 *Cyperus*
 42 *Cyperus*
 43
 44 *Cyperus*
 sandy places
 45 *Panicum*
 the common grass in low pastures
 46
 bank of stream
 47
 bank of stream

- 48 *Piper*
 49 *Verbena officinalis* *littoralis*
 50 *Ageratum*

47 ^{hill above F. Virginia}
 Dec. 5 - side of valley of Rio
 Neiva, about 1 km. above Salado,
 40 km. SSE of Neiva Huila

- 1945 *Cinchona pubescens* Vahl
 edge of forest 6600 ft
 common in this patch of woods
 10-15 trees in sight at once.

- 52 *Palicourea*
 dense forest

6900 ft.

erect.
 forming a dense turf; scapes
 small tufts.
 erect

depressed tufts

"makay" acc. Rodriguez
 up to 2 m. tall
 shrub up to 2 m. tall,
 fls. yellow.
 shrub 2 m. tall, staminate
 and pistillate flowers on
 different branches, the
 staminate lower. (Plant
 of several stems, possibly
 more than one plant involved).
 shrub 4 m. tall, spikes
 white, arcuate.
 used as an antimalarial
 locally "Verbena nigra"
 "marrubio" or "yerba
 de chivo" used for
 stomach trouble.

anal. Bellis. tree 10 m. or more tall, 2-3 dm. through
 9.1 C 3. leaves reddish esp. midrib
 C 1.2% and veins. Bark light pinkish
 Gm 5 white, but oxidizing rapidly
 TC 1.2% to reddish.
 shrub 2-3 m. tall, flowers
 lavender purple.

19253 *Cinchona*
thick woods, steep slope 6900 ft

54

55 *Cinchona officinalis*
in dense Chusquea brake in
ravine.

56 *Cinchona officinalis*
edge of opening filled with
Chusquea sp. common here,
said to have been planted
70 or 80 years ago.

57 *Cinchona officinalis*
thicket of Chusquea sp. on steep
slope.

58 *Phoradendron*
parasitic on # 19257

59 *Cinchona officinalis*
dense but rather decadent
woods. Many trees, especially
this species dying or dead

Dec. 5 - Rio Neiva, 6200 ft

strip of woods on bluff
above river

60 *Cinchona pubescens* Vahl

only tree seen, nearly dead,
only sprouts available.
shrub rather scrambling
in other shrubs 1.5 m. tall,
flowers bright red, forming
a globose mass. Plant with
scanty latex.

seedling 1 m. tall.

near no. 19256 + 19257, ~~the same~~
identical with them.

Anal. Bellis: tree 10 m. tall, slender.
g + C 1.9% trunk base, 1.5 dm. thick breast high
Ci 0.2% (bark sample) Bark whitish
Qui 0.1% but soon oxidizing to reddish,
T.C. 2.1% very bitter.

Anal. Bellis: same. leaves only at top.
g + C 2.9% leaves with only slight
Ci 0.57% luster, rather stiff, veins
Qui 0.1% not prominent. (bark sample)
T.C. 2.6% forming mass 1 m. in diam.
fruits yellow, stems compressed

Anal. Bellis: small tree, almost dead,
g + C 1.9% bark brittle and very
Ci 0.9% coherent D-wood. This and
Qui 0.1% # 19256 + # 19257 called "guinea tuna"
T.C. 2.4% locally. Considered the best kind.
Used locally.

Anal. Bellis: small tree 6 m. tall, 1 dm. thick,
not more leaves turning reddish,
than traces much larger tree nearby
of *Cinchona* bark pinkish white
alkaloids.

Dec. 5 - Headwaters of Rio Neiva,
bet. Cerro Neiva and Cerro del Diablo,
Huila 35 km. ESE of Neiva alt. 6700 ft.
19260a *Lycopodium clavatum*
on cut above trail

Cinchona
Altagracias - old plantation
evidently the form of *C. officinalis*.
Trees are all rather small,
and half dead. The bark of
from the trunks. This is the
region, said to be the best
form, broader leaved and more
partly dead. Only sprouts
patch of forest *C. pubescens*
trees are larger and in
quite feasible to harvest

Vic. of Finca
Only the form of *C. officinalis*
here, but only one small
all small, about 1 dm. thick
those in Altagracias, have
tops. Evidently the tree is
species of *Ladenbergia* are here,
sometimes, "calisaya". These are
It is likely that we did not
here, as the valley is com-
wooded mountains. If the
fairly high, some bark might

extensively creeping,
stems brittle. "cochonde polbre"

notes Dec. 5-6.
of what looks like *C. pitayensis*.
alis common in this region. The
the older ones seem diseased
there is rather hard to remove
so called "quina tunda" of this
bark. One or two trees of another
pubescent were seen, but
available. Lower down, in another
is very abundant. The
good condition. It would seem
both of these species here.

Mercedes
As mentioned above seen
ridge explored. The trees were
and 10 m. tall, or smaller. They, like
tall bare trunks and bushy
small and short lived. Two
also, called "quina naranja", or, one
abundant and large trees.
see the best Cinchona stands
pletely surrounded by densely
alkaloid content of the bark is
be produced here.

65

✓ Dec. 6 - Headwaters of
Río Meriva, between Cerro del Diablo
& Cerro de Meriva, Huila, near
boundary of ~~Cagaita~~ Meta
35 km. ESE of Neiva 7500 - 7700 ft.

Dense tangled forest, openings
filled with Chusquea.

19261

Ladenbergia

single tree left in clearing

62

Nertera

~~trail~~ cut in clearing, ^{vertical path} on ~~bank~~

63

Lycopodium

wet seepy grassy bank

64

Palicourea

wet ravine along stream

65

~~Licium~~

wet rocks in ravine along stream

66

Miconia licophora Wurdack (type, ined. 1942)

wet ravine

67

Ladenbergia

slope

68

Ladenbergia macrocarpa

slope

69

Phylodendron

70

Trichomanes

very common on tree trunks

tree 10 m. tall, 2.5 dm. thick,
flowers white, fragrant,
forming dense mat,
fruits clear translucent coral
red, darker distally.
erect.

shrub 2 m. tall, thyrses
yellow, corolla white,
plant purplish red, stem
fleshy, erect.
shrub 1.5 m. tall, fl. white.

Anal. Bellis:

TC no more
than traces

Anal. Bellis:

TC no more
than traces

tree 20 m. tall, 2.5 dm. thick,
flowers white, fragrant.
(bark sample)

tree 15 m. tall, leaves with
reddish petioles, fruits
dry and old. (Bark sample)
spathe and spadix light
green, short stem, probably
becoming vine-like, with
aerial roots.

rhizome clinging tightly
to tree trunk. "patevaca"

19271 *Ladenbergia macrocarpa*
slopes

72 *Chusquea* thickets

73 *Hedyosmum*
ridge

Finca Las Mercedes, 2.5 km. ESE of Neiva
headwaters of Rio Balsillas,
Dec. 6 - Bet. Cerro del Diablo
& Cerro Neiva, ~~Copacabana~~ near
border of Huila. 7700 ft.

Forest interspersed with
openings filled with *Chusquea*.
19274 *Cinchona* ~~officinalis~~

75 *Cinchona* ~~officinalis~~

Dec. 7 - Finca Tama, in upper
valley of Rio Balsillas (part of old
Hacienda Balsillas), 7200 ft.

76 *Drymaria cordata*
in fences around garden and coral.

anal. Ballis:
not more than
traces of
Cinchona alkaloids.

tree 15 m. tall, sterile.
(Bark sample) C

terrestrial (in decaying
vegetation) flowers greenish
white.

shrub 3 m. tall, very
fragrant, even when
not broken. ~~to~~ "granizo
morada" locally. much
sold in drug stores as
remedy for stomach aches
and fever. Fruit fleshy,
greenish, cone-like. (leaf sample)

A few old stubs of *C. pubescens*
with sprouts still persist
along the trail above Las Mercedes
in cleared area.

anal. Ballis:

g. + c. 2.1%

c. 0.4%

qui. 2.1%

TC 2.5%

10 m. tall, 1 dm. thick
small slender tree with
bare trunk and bushy
top, leaves glossy above,
with red midrib. Bark
white inside, oxidizing
brown, bitter (Bark sample) C

anal. Ballis:

g. + c. 1.3%

c. 0.6%

qui. 2.1%

TC 1.9%

slender tree 10 m. tall, 1 dm. thick,
leaves glossy above. flowers dark
purple. "Quina tuna" said
to be the best in this region
(also # 19274) (Bark sample) A

leaves supported on fence.
fruiting pedicels viscid, easily detached.

7

✓ Dec. 7. - Valley of upper ^{Rio} Balasillas,
bet. Finca Tama and Finca Balasillas,
Caguetá (or Meta)
7200 m.

Wooded ravine along river
19277 *Cinchona pubescens*
only two trees seen here.

78

Ficus
solitary trees left after
clearing flat valley floor
for pasture; wet ground.

79

✓ Dec. 7 - Finca Balasillas, hills
above ranch house, upper
Rio Balasillas, 4 km. e.n.e. of Neiva
Caguetá (or Meta)
slopes and bottom of wet
steep densely wooded ravine
7500 ft.

19279

Saravia floccifera Triana
lower edge of forest

80

Chusquea
near bottom of ravine

81

Centropogon
bottom of ravine

82

Gynandropsis
bottom of ravine

83

Palicourea
slope, common

Anal. Bellis

B+C to

Ci 1.4%

Zn to

TC 1.4%

Small tree 6-7 m. tall, older
leaves red, stipules strongly
recurved, flowers pink.
(Bark sample.) fragrant,
hairs on margins of lobes
white.

Great trees 30 m. tall, trunks
white, latex not
especially abundant.
figs red. "caucho"

Small tree 5 m. tall, flowers
white. "dulcamero" fruit eaten.
tough liana forming dense
tangles, only one seen in flower.
vine-like herb, several
m. long, fls salmon color
sprawling shrub several
m. long, branched, flowers
orange, fruit greenish, white
shrub 3 m. tall, infl. purple,
corolla blue-purple.

19284 *Cinchona pubescens*
steep side of ravine

19285 *Macrocarpaea*
steep side of ravine

23 Dec. 8 - mountain directly
across valley of Rio Balsillas
from Finca Abyssinia (about
1.5 km. below Finca Balsillas)
45 km. S.E. of Neiva *Cayana Meta*
7500-8000 ft.

Dense rain forest on steep slope.
19286 *Peperomia*
creeping on mossy tree trunks. ~~inflorescence~~

87 ~~*Polypodium*~~
mossy tree trunk

88 *Ladenbergia macrocarpa*

89 *Pilea*
dense shade, on ~~sloping~~ sloping ground

Anal. Ballis
g.c. 0.8%
Ca 1.2%
gwi ~~in~~
TC 2.0%

tree 10 m. tall, sterile, ~~stems~~
older leaves reddish, stipules
small, strongly recurved
(Bark sample)

~~shrub~~ shrub with single
stem branched only near top,
3 m. tall, top composed of
decussately arranged
inflorescences, corolla
campanulate, greenish-white.
fruit immature (from a
different plant).

Although ~~there are~~ the people
say there are scattered "guinea"
trees here, we saw absolutely
no *Cinchona* in a day's climbing.
Much *Ladenbergia macrocarpa*.

prostrate, stems filiform
leaves fleshy, variegated
pendent

anal. Ballis
not mol
than traces
of *Cinchona*
delatoides

tree 15 m. tall, 1.5 dm. thick,
fruit immature, stipules
calyptrate (Bark sample)
stems fleshy, brownish

19790

in small opening filled with *Chusquea*91 *Palicourea*

Finca Abyssinia

Dec. 8 - Valley of upper Rio Balsillas,
(~~Balsillas~~) (1.5 km. below old Hacienda
Balsillas) 43 km. e.s.e. of Neiva

Meta Caqueta

7000 ft.

Flat plain ^{wet,} formerly wooded
but now cleared, except
for an occasional tree.92 *Cinchona pubescens* VahlDec. 9 - Finca Playon, just below Las
Mercedes, near head of Rio Balsillas
Meta Caqueta
7600'

Dense wet forest

93 *Cinchona pubescens*94 *Cinchona pubescens*tree 10-12 m. tall, 1 dm. thick.
flowers white, young
fruits pinkish. leaves stiff
but not especially thick
small tree or shrub 6 m. tall
inflorescence purple,
calyx green, corolla dull
flesh color, fruit green.A few scattered *Cinchona*
pubescens trees in the cleared
valley, and stump sprouts
on the low foothills which
have been recently cleared suggest
that formerly this species
may have been abundant at 7000'±

Anal. Bellis:

g+c 1.2%

Ci 0.4%

qui 21

TC 1.6%

tree 6 m. tall (formerly taller
but main stem cut off
2 m. above ground), 2 dm. thick
bark very scaly, leaves
reddish when old, fruit some
immature and ^{some} dehiscent
stipules strongly reflexed.Quite a few trees of *C. pubescens*
here, a form with leaves
acute at base. Called locally
"cascaillo".

Anal. Bellis:

g+c 1.4%

Ci 0.3%

qui 0.1%

TC 1.7%

Anal. Bellis:

g+c 21

Ci 0.3%

qui 21

TC 0.8%

small tree, some leaves red,
stipules reflexed, buds pink (bark sample)
large tree 15 m. tall, 3 dm. thick, some
leaves red, stipules reflexed

Dec. 10 - Batán, on Rio Neiva
10 km. below source, about 32
km. s.e. of Neiva. Huila alt. 6700'
cut over slopes with brush,
mainly Baccharis sp.

L 19795

~~herb up to~~
Tuckesia

L 96

L 97

Galium (Relbunium) - Hypocarpium

L 97a

Stellaria

L 98

Helaginella

abundant on cut banks
above trail.

Dec. 10 - Valley of Rio Neiva
3 km. below Salado

Huila

Pasture with thickets along
small stream.

L 12 99

Phytolacca

L 19300

Heliconia

in tall grass along stream

L 01

Salvia

pasture

L 02

Dec. 10 - Valley of Rio Neiva.
2-3 km. above La Puente,
bet. Algeciras and Salado
Huila

L 03

Hamelia

Thickets near river

herb up to 1 m. tall,
fls orange-red, anthers purple.
- somewhat scandent
shrub, fls. scarlet,
pendent.
- vine, climbing through
bushes, fruits fleshy,
orange.
- appressed to banks.

fls. white

herb 1 m. tall, fls. whitish.
herb 1.5 m. tall, spikes erect,
bracts red, fls. yellow.
- erect herb 1 m. tall,
fls. blue, herbage aromatic.
- weak herb, fls. deep chrome
yellow or orange yellow.

shrub 1.5 m. tall (others 3 m.), fls.
vermillion, fruits, infl. stems, petioles red.

19304

Jamia

on steep slope above road, young plants abundant on nearby slopes.

Dec. 11 - Quebrada Perdiz, affluent of Rio Neiva, S.E. of Algeciras (San Juanito) 4.2 km. S. of Neiva

Huila

05 *Bidens*

woods along stream in deep gulch

06 *Blechnum*

rocky places above trail, abundant

07 *Polypodium*

rocky places above trail

08 *Cinchona pubescens* Vahl

on steep slope in wooded ravine, not abundant but seedlings very common along trail. Most of it has evidently been cut.

09 *Centropogon*

wooded ravine

10

wooded ravine, climbing in *Cinchona* tree.

11 *Drymaria*

disturbed ground below trail in deep wooded ravine, not shaded

trunk 6 dm. tall, leaves erect to spreading, leathery, glaucous, staminate spikes erect, buff, malodorous.

4500 ft.

Vine-like herb, hanging from small trees, flowers bright yellow.

rhizome or roots used as a vermifuge.

6000 ft.

rhizome creeping, fronds leathery.

6000 ft.

6450 ft.

Anal. Pellis

g+c 0%

ci 0.1%

gwi 7%

TC 0.2%

Small tree, 3 m. tall, about 1 dm. thick, some leaves red, veins and petioles reddish, stipules erect, spreading somewhat before falling and on sucker shoots. (Bark sample) leaves dull above.

6600 ft.

herb 1 m. tall, lactiferous, flowers scarlet, anthers purple.

6150 ft.

herbaceous vine, extensively climbing, inflorescences pendent, green leaves glaucous beneath.

spreading herb, fls. white.

19312

Cinchona

in ~~the~~ wooded ravine,
scattered trees but not abundant

Q = 3.4
Cd = 0.8

Dec. 13 Meiva, Huila 472 m.

Walked around town with Holdridge, looking at street trees, weeds, etc. *Mangifera indica*, *Melicocca bijuga* (Marmoncillo), *Ficus benjamina*, *Spathodea campanulata*, *Pithecellobium dulce*, *Erythrina glauca*, *Cassia* sp., *Chlorophora tinctoria*, *Cordia* sp. with rough leaves, ^{small} white fls. and translucent white fruits, *Gliricidia sepium*, *Delonix regia*, *Albizia* sp., *Samanea saman*, etc. occur.

Cassia alata and *C. occidentalis* (?) are abundant as weeds.

Noticed ~~a~~ a species of *Rauwolfia* with red fruits, herbaceous, growing wild. *Chrysobalanus icaco* has small obovate leaves. *Duranta repens*, *Plumeria rubra*, *Jatropha curcas*, *Jatropha* sp., *Lochnera rosea*, and many palms as ornamentals. Citrus common. Rice cultivated near the river outside town.

Anal. Bellis.
Q + C 2.9%
Ci 0.2%
Gu TC 3.1%

small tree 10 m. tall, leaves reddish, trunk 8 cm. thick.
(Bark sample)

Here, as usual, the *Cinchona pubescens* is mostly cut, though some remains in ravines and probably in the patches of forest still remaining on the steeper slopes. Along the trail are sucker shoots and many small seedlings. At much higher altitudes *C. officinalis* occurs. At 3000' it is rather scarce where the trail goes ~~down~~ up the valley of the G. Perai, but it must occur in some quantity elsewhere in the vicinity, judging from the number of people who are interested in collecting bark.

Guayuna ulmifolia is everywhere as a weedy tree.

Dec. 15 - Rio Cabrera, 2 km below confluence
3 km. ^{WSW} below Colombia. Huila

3000 ft.

Xeric flat, recently flooded,
dominant plants *Jatropha* sp.,
Acacia farnesiana, *Cereus* sp.,
Opuntia sp., ~~Cactus~~ *Cactus* sp.,
rather heavily grazed.

L 19313

L 14 *Euphorbia*

L 15 *Scutellaria*
low grassy place

L 16 *Scroph*
low grassy place

L 17 *Litharexylum*

L 18 *Eragrostis*

L 19 *Alternanthera*
common on grazed or disturbed
places

L 20 *Solanum*
common

L 21 *Evolvulus*
rare

L 22 *Ayeria*

The ~~road~~ road from Neiva
to here provides a grand
display of large cacti, several
Cereus and a couple of *Opuntias*.
It is a dry hot valley with
savannah and thorn
forest.

prostrate, forming a loose mat,
flowers yellow.

prostrate, glands pinkish
white, leaves glaucous beneath,
erect, flowers white outside,
violet within, lobes white,
herbage aromatic, odor rather
penetrating.

suffrutescent herb 1 m. tall,
flowers white.

Small bushy spreading
tree, 5 m. tall, flowers greenish
yellow.

culms spreading
prostrate, rooting at nodes,
forming large loose mats,
heads prickly.

yellowish green bush up
to 1 m. tall, usually dense,
fruit bright red, thorns
yellow, dark brown toward
tips.

erect.

almost prostrate.

- 19323 *Lida*
common
- 211 *Boerhaavia*
- 215 *Tragus*
common
- 216 *Tragus*
common on grazed or disturbed spots
- 217 *Evolvulus*
common

Dec. 15 - Colombia, on Rio ^{ambic}~~Cabera~~
just above confluence with R. Calvia, Huila
3000 ft

Dry eroded river bluffs,
bare soil with small
Prosopis trees, mostly bare
soil, some cacti (one
Mammillaria, two *Cerei*, one
Cactus, 2 or 3 *Opuntias*.)

- 218 *Croton*
top edge of bluff
- 219 *Delinia biflora* det. J. J. Blake
ledges of gravel
- 220 *Delinia*
near base of bluff.
- 221 *Leijanias*
near base of bluff
- 222 *Acalypha*
talus at base of bluff
- 223 *Abutilon*
talus at base of cliff

prostrate, flowers yellow.

prostrate, leaves glaucous
beneath, root obviously thickened
and perennial.
culms spreading

culms spreading.

ascending, flowers blue,
leaves gray-sericeous.

fls. yellow.

Vine twining over small
bushes, flowers blue
vine, climbing on bushes,
fls. white.

suffrutescent herb 7 dm.
tall. stigmas & styles white.
suffrutescent herb,
fls. orange.

19334 *Kallstroemia*
talus at base of bluff

35 *Malvaceae*

Top of bluff

36 ~~Lida~~ *Malvastrum spicatum* (L.) Gray

Top of bluff

37 *Plumbago*

top of bluff

38 *Desmanthus*

top of bluff, rare

39 *Heliotropium*

top of bluff, common.

40 *Peplois*

top of bluff

41 *Peplois*

top of bluff, common

~~42 *Lida*~~

42 *Lida*

top of bluff

43 *Tillandsia*

top of bluff

44 *Casahuate*

base of bluff and on ledges

Mud and gravel flats along river

45 *Borreria*

46 *Borreria*
abundant

47 *Hypoxis*

prostrate, fls. purplish,
closed when collected.
erect, fls. orange-yellow.

spreading suffrutescent
herb, fls. white.

fls. yellow, plant spreading,
depressed.

spreading-ascending herb,
fls. white.

prostrate vine, flowers
light yellow, inflorescences
erect.

prostrate, fls. bright
violet.

erect suffrutescent herb
0.5 m. tall, fls. orange.
epiphytic on twigs of
P. whopis sp.

shrub up to 3 m. tall, long,
hanging somewhat from
bluff. fls. white, fruit immature,
fls. & fruit from different plants.

erect, fls. white.

erect, fls. red-purple

herb 1 m. long, ascending,
fls. white, herbage
strongly aromatic.

- 19348 *Polygonum punctatum* Ell. det. ref.
 49 *Eriogonum*
 50 *Momordica charantia*
 edge of mud, on bank of river
 51 *Malpighia*
 bank of river
 52 *Patente*
 bank of river
 Dec. 16 ^{Finca El Payon} - l. side of valley of
 Rio Ambica, ^{1.5 km.} ~~several~~ km.
 above confluence of Rio Blanco,
 13 km SSE of Colombia Huila
 4100 ft.
 with L.P. Weddidge
 53 *Mangrovia*
 in woods, ~~weak~~
 54 *Cosmibuena*
 edge of woods
 55 *Heliconia popayanensis* HBK.
 edge of woods
 56 *Cosmos*
 along trail, open bushy slope
 57
 along trail, bushy slope
 58 *Cuphea*
 along trail, bushy slope
 59 *Polypodium*
 cut bank along trail
 60 *Polypodium*
 cut bank along trail.

- fls. whitish. plant erect.
 erect, fls. purplish.
 vine, fls. yellow, fruit
 orange, splitting into 3
 parts, seeds red.
 small shrub, 0.5 m. tall
 fls. pink, fruit red.
 fls. whitish.
 weak shrub, leaning
 on other shrubs, 5 m. tall.
 Tree 7 m. tall, fruits immature.
 leaves leathery, pale beneath.
 bark smooth, brown.
 large spreading tree 8 m. tall,
 fruits purple, conspicuous
 rays pink, mature
 achenes radiating at all angles.
 fls. white.
 shrub up to 1 m. tall. fls.
 with pink petals.

anal. Bellio:
 not more than
 traces of
 cinchona
 alkaloids.

- 19361 *Browallia*
grassy place along trail
edge of forest.
- 62
- 63 *Maya*
forest
- 64 *Borreria*
in woods, along stream
- 65 *Elephantopus*
in woods along stream
- 66 *Asplenium*
rocks and earth along stream
- 67 *Blechnum*
rocky bank of stream
- 68 *Aneides*
rocky banks of stream
- 69 *Blechnum*
rocky bank of stream
- 70 *Borreria*
edge of stream, rocky bank
- 71 *Cornibueno*
wooded ravine

Dec. 17 - Rio Ambica near Guabada
Honduras, 4100 ft.

Wooded ravine

72 *Palicourea*

73 *Terminalia*

isolated tree on bushy slope

fls. bright blue with
yellow eye.
erect shrub with single
stem, 3 m. tall, leaves
white beneath, inflorescence
very large, compound,
involucre purple, fls. red.
spreading tree, 7 m. tall,
fruits green, flattened.
fls. white

fls. very pale lavender,
nearly white.

fronds quite diverse.

fls. white

tree 15 dm. tall, 3 dm. through,
fls. white, fruit immature

shrub, fls. & infl. yellow.

tree 1 m. tall, fls. white.

"Panto Mera"
leave it
inside till
is pressed against
a cut wall
stop bleeding.

193741

Rondeletia
woods along trail

75

Ladenbergia
abundant in woods in ravine
anal. Bellis: not more than traces
of *Cinchona alkaloids*

76

Tillandsia usneoides
hanging in great masses from
Ladenbergia trees

Dec. 17 - Rio Ambica near
Quebrada La Cueva, 16 km. SE of
Columbia

Huila,

4200 ft.

Wooded ravine and slope

77

Cinchona pubescens
edge of woods

anal. Bellis:

Q. + C. 7%

Cu 0.4%

Qui 7%

TC 0.4%

78

Coccoloba
along trail, edge of woods

79

Isertia
edge of woods.

80

Yareta
along trail

81

Lipahina

82

Calycephyllum
dense woods

shrub 1-2 m. tall. flowers
pale pink, deep pink outside.

Tree 20 m. tall, 3 dm. thick,
leaves glossy, panicles
drooping. "Quino cascavillo" locally.
silvery gray

(bark sample)

tree 8 m. tall, fls. pink, fruits
immature, leaves rosate
beneath, petioles red, stipule
erect, later spreading.

a purple

(bark sample)

trailing herb, rooting at
nodes, flowers lavender,
fruit bright blue, fleshy.

tree 10 m. tall, 3 dm. thick,
leaves white beneath,
flowers white, fragrant.

flowers lavender blue,
campanulate.

shrub, fruits red, fleshy,

perianth, smell like lemon grass.

tree 8 m. tall, expanded calyx
lobe greenish white, corolla white.

✓ Dec. 17 - Rio Ambica, near Quebrada San Pedro

Huila

1400 m.

Dense rain forest

19383

Hoffmannia

abundant along trail

✓ Dec. 17 - Rio Ambica, near confluence with Quebrada la Trinidad, 23 km. SSE of Colombia

Huila

1250-1400 m.

Dense rain forest.

84

Jussiaea umbellifera Karst.

fairly common locally

85

common locally along trail

86

Psychotria

87

Cephaelis axillaris

88

Crocodylion

between rocks with water trickling between them, near stream

89

Miconia

near stream

✓ Dec. 17 - Rio Ambica near source, just below (El Rucio) Pasadito de Cruz, 24 km. S.W. Colombia

Huila

6200 ft.

Wet ^{moist} rocks in trail

90

Nertera granadensis (L.f.) Prun

shrub 1.5 m. tall, flowers yellow, fruit dark red, fleshy.

spreading tree 6-7 m. tall, flo. white, brittle.

weak erect shrub, flo. orange, fruit immature.

shrub 2 m. tall, flowers white.

green shrub 1 m. tall, flo. white, fruit blue.

shrub 2 m. tall, flo. purplish white.

prostrate, fruit red. leaves darker green than usual

- ✓ Dec. 13 - Buenavista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta
4500 ft.

~~Wet~~ wet forest around edge of clearing.

19391
"

Cephaelis

edge of clearing, thicket

92

Psychotria

thicket at edge of clearing

93

Ladenbergia

edge of clearing, common

94

Palicourea

shallow ravine

95

Tab.

woods along trail

96

Dec. 13 - Trail below Buenavista, valley of Rio Tigre, 30 km. s.e. by e. of Colombia, Meta

3500 - 2800 ft.

96

along trail

97

Cephaelis

very common in undergrowth in woods.

98

Lasciaris

climbing among shrubs

Chaco and up
if there
about for
1000 (200)

alpinum (50)

in forest (50)

erect herb 1.5 m. tall,
t. flowers yellowish
- bright blue, fleshy,

2 m. tall, fls. white.
low juice when cut, pale easily
1, others much
very white.

shrub 2 m. tall,
when young, purple,
green, fruits
dark when ripe.

ing in small

tree, flowers white.

3500 ft.

erect herb 1 m. tall, fls. white

3500 ft.

shrub 1 - 2 m. tall, stem
green, fls. white, fruit blue.
involucre white.

✓ Dec. 18 - Buenavista, a small abandoned clearing on the edge of the forest to Uribe, in

19391

~~Some~~ wet
of clearing
Cephaelis
edge of cle

92

Psychotria
thicket at

93

Ladenbergia
edge of c

94

Palicourea
shallow

95

woods at

96

✓ Dec. 18 - Trail below Buenavista,
valley of Rio Tigre, 30 km. s.e. byc.
of Colombia, Meta

3500 - 2800 ft.

96

along trail

97

Cephaelis
very common in undergrowth in woods.

98

Laccaria
climbing among shrubs

Erect suffrutescent herb 1.5 m. tall,
bracts scarlet, flowers yellowish
white, fruit bright blue, fleshy,
pyriform.

shrub 2.5 m. tall, fls. white.

bark exudes yellow juice when cut, pale easily

tree 3 m. tall, others much

larger, flowers white.

spreading shrub 2 m. tall,
inflorescence, when young, purple,
when mature green, fruits
purple-black when ripe.

vine climbing in small
tree, flowers white.

anal. pellets:
not more than trace
of linacrine
alkaloids.

3500 ft.

erect herb 1 m. tall, fls. white

3400 ft.

shrub 1 - 3 m. tall, stem
green, fls. white, fruit blue,
involucre white.

✓ Dec. 18 - Buenavista, a small abandoned clearing on the trail from Colombia to Uribe, in drainage of Rio Tigre

Meta
4500 ft.

~~Wet~~ wet forest around edge of clearing.

19391

Cephaelis

edge of clearing, thicket

92

Psychotria

thicket at edge of clearing

93

Ladenbergia

edge of clearing, common

94

Palicourea

shallow ravine

95

woods along trail

96

✓ Dec. 18 - Trail below Buenavista, valley of Rio Tigre, 30 km. s.e. byc. of Colombia, Meta

3500 - 7811 ft.

96

along trail

97

Cephaelis

very common in undergrowth in woods

98

Lasciaris

climbing among shrubs

Erect suffrutescent herb 1.5 m. tall, bracts scarlet, flowers yellowish white, fruit bright blue, fleshy, pyriform.

shrub 2.5 m. tall, fls. white.

bark exudes yellow juice when cut, pale easily

tree 8 m. tall, others much

larger, flowers white.

sprawling shrub 2 m. tall,

inflorescence, when young, purple,

when mature green, fruits

purple-black when ripe.

vine climbing in small

tree, flowers white.

anal. pellets:
not more than trace
of limonene
alkaloids.

3510 ft.

erect herb 1 m. tall, fls. white

3400 ft.

shrub 1 - 3 m. tall, stem

green, fls. white, fruit blue.

involucre white.

- 19399 *Jussiaea*
wet place, edge of clearing
near river
- 19400 *Nephrolepis*
on tree in wet forest, common.
- 19401 *Ixora*
along trail near river, common
on bluffs ~~and in bottom~~
- 02 *Hippotis albiflora*
along trail in woods
- 03 *Hippotis*
bluff over river
- 04 *Trichomanes*
vertical moist earth wall on bluff
- 05 *Paris*
abundant on bluff over river
- 06 *Paris altissima* Poir. det. B.B. Hodelinger 1969
on vertical moist earth wall
- 07 *Maranta*
bluff over river
- 08 *Cephaelis*
bluff over river
- 09 *Condaminea corymbosa*
bluff over river

Dec. 13 - Ridge bet. Rio Tigre and
Rio Papamena, trail from Colombia
to Uribé, Papamena side

- 10 *Ladenbergia*
earth bank, wet woods
- 11 *Ladenbergia*
abundant on slope, broken woods

- 3000 ft. herb 2 m. long, supported on
other plants, flowers small,
less than 1 cm. across, yellow.
- 3200 ft.
2800 ft. shrub up to 2 m. tall,
infls. all cauline below
leaves, coral red; fls. with
lobes yellow, shading to red
on tube; fruit white, fleshy.
shrub 3 m. tall.
- 3100 ft.
- 2800 ft.
- 2800 ft.
- 2700 ft. rhizome erect, with
several fronds, all sterile.
- herb 1 m. tall, bare stem
up to main node.
erect herb 1 m. tall, involucre
white, fruit translucent
pale green.
tree 20 m. tall, corolla purple
outside, green within

3500 ft. flowers red ☒ peels easily.
bark exuding yellow juice when cut,
anal. Gallie: no
more than traces of
lignans alkaloids, dropping. (Bark sample)

1942 Colombia

Cerro Papamene, on

✓ Dec. 18 - Rio Papamene, on trail
to Uribe,

Meta

2500 ft.

19412

growing downward on mossy tree
trunk beside river✓ Dec. 19 - Chamuscado, ^{7 km. n.e. of Uribe} ^{Las Lagartijas} on plateau between
Rio Papamene and Rio Duda.

Meta

3500 ft.

Clearing on hilltop

13 *Coccocypselum*

14

15

16

edge of clearing

17

Jussiaea

18

19

Batala Scoparia dulcis~~*Psychotria*~~

Las Lagartijas.

✓ Dec. 19. - Plateau between Rio ~~and~~
Papamene and Rio Duda, east of
Chamuscado, 5-6 km. n.e. of Uribe

Meta

3500 ft.

along trail in dense forest

20

Psychotria - *Epilobium*

abundant

21

Cephaelis

abundant

Meta

flat to trunk

decumbent herb, fls. lavender,
- fruits blue, fleshy, pyriform.
- flowers yellow.- flowers blue-lavender.
- erect shrub, 3 m. tall, virgate,
- flowers white.- herb 1 m. long, fls. yellow, leaf
- than 1 cm. across.- decumbent herb, flowers bright
- rose, tube deeper colored.- erect herb, fls. purplish white
- slender erect

- slender erect shrub 3 m. tall,

- fruits purple.

- shrub with green stems,

- up to 2.5 m tall, fls. white, involucre
- white.

19422 *Cephaelis*
common

Dec. 19 - Uribe.

Meta

2500 ft.

Clearings around edges of
village.

23 *Celastrus*
edge of ravine

24 *Gouania*
edge of ravine

25 *Copa*
grassy place
26 *Palicourea*
edge of ravine

27 *Grass*
grassy place

28 *Solanum*
thicket

29 *Phytolacca*
thicket

30 *Fuchsia*
grassy place

31 *Dichromena*
grassy place

32 *Bidens*
fencerow

33 *Meta*
fencerow

34 *Cuphea*
grassy place

herb up to 1 m. tall, bracts
scarlet, flowers pale yellow.

vine climbing in bushes,
flowers rose color, anthers
purple. latex. said to be a latex
large vine climbing over
trees, fruiting copiously.
erect, disk greenish white.

shrub ^{2.5} m. tall, thyrses orange,
corolla pale yellow tipped
with deep orange red.
flowers white

puffrutescent, semi-scandent
herb, flowers pale lavender.
herb up to 1 m. tall, racemes magenta,
fls pink, fruit immature. "guava" locally

small tufts, bracts white

vine, hanging from tree,
fls. yellow. stem ^{with} slightly odor.
semi-scandent shrub,

prostrate with erect branches,
fls. pink

- 19435 Borreria
grassy place
- 36 Borreria
grassy place
- 37 Borreria
grassy place
- 38 Borreria
grassy place
- 39 Tabernaemontana coronaria
cultivated

Dec. 20 - Uribe

Meta
7500 ft.

- 40 Borreria
side of ravine
- 41 Blechnum
vertical earth walls of ravine
- 42 ~~Peltandra~~ ^{Macarenia} ~~clausenii~~ ^{det. P. J. R.}
on rocks in running water ¹⁹⁵⁴
- ~~43 Lelaginella~~
- 43 Lelaginella
on moist vertical earth sides of ravine
- 44 Blechnum
on moist or wet vertical earth sides
of ravine
- moist woods along stream
- 45 Rubus
dense woods

- fls. white
- fls. white
- fls. white
- fls. white
- shrub, flowers white, odorless.
leaves dark green.
- "doncello"
shrub up to 4 m. long, inflorescence
flattened, pink, fls. pink, white
distally, fruit immature
- holdfast spongy, closely branched,
forming networks on rocks, leaves
finely branched, peduncles soft,
thick and fleshy in bud, smaller
in flower, wiry in fruit.
flat, prostrate.
- larger plants up away
from water, smaller near
water's edge.
- erect slender shrub with long
leafy lateral branches, virgate,
fls. white, fruit bluish green.

- 19446 *Remijia pedunculata*
dense woods, forming a "mancha" or patch
- 47 *Remijia pedunculata*
"mancha" or ~~other~~ small patch in
dense woods. said to be abundant
in this vicinity. bark used by inhabitants.
clearing on slope
- 48 *Malp.*
- 49 *Malp.*
- 50 *Jacaranda*
- 51 *Malp.*
- 52 *Viçnia*
common
- 53 *Malp.*
- wooded hill, moist woods
tangled with lianas and Chuaguis
- 54 *Duroia*
- 55 *Adiantum*
forest floor, common
- 56 *Remijia pedunculata*
scattered trace in dense woods,
not reaching canopy.

slender tree 10 m. tall, leaves
dull dark green, fruit mature.
"quina cuprea" or "quina"

slender tree 15 m. tall, fruits
almost mature, a few mature.
"quina cuprea" or "quina"

bush 1 m. tall, fruit pale green.
bush 1.5 m. tall, flowers yellow.

slender shrub 3 m. tall, flowers
on bare shoot, purple,
buds much deeper purple.
erect, fls. white

shrubs 2 m. tall (others seen
are trees), flowers pale copper
colored, ~~then~~ bark exuding
~~red~~ vermillion latex when
broken. "punta de lana" "lacre"
fls. yellow.

erect shrub 3 m. tall, enlarge-
ments below nodes contain
small ants.

Anal. Bellier:

g+c 1.4%

ci 0.4%

qui 0.4%

TC 2.2%

small tree, 10 m. tall, 1 dm.
thick, bark thin, bitter, red-brown,
outer layer comes off easily as
a thin paper-like layer. fruits
immature. (Bark sample)

- 19457 *Cephaelis*
in forest floor, rare
- 58 *Melastoma*
climbing to canopy of forest
- 59 *Polypodium*
on mossy tree trunk
- 60 *Vittaria*
on mossy tree trunk
- 61 *Ladenbergia magnifolia*

Dec 21 - Rio Duda, just above
Uribé

Meta

2500 ft.

- 62 *Malva* *sp.*
yard of abandoned house
in clearing
- 63 *Malva*
yard of abandoned house in old
clearing
- 64 *Deeringia*
along trail in moist woods
- 65 *Hamelia*
along trail in moist woods
- 66 *Opismenus hirtellus*
along trail on rocks on shaded
side of ~~gully~~ deep ravine
- 67 *Adiantum*
side of trail on rocks in deep ravine

bracts and fruits bright purple.
large liana, stem flat.

fronds leathery

Anal. Better
not more
than trace
of linchone
alkaloids

tree 25 m. tall, 3 dm. thick,
bark exuding yellow juice
when cut, ~~the~~ oxidizing
reddish. (bark sample)
"cascarilla"

herb 1 m. tall, fls. white
"malva"

"aji indio"

herb 1.5 m. tall, flowers yellow,
fruit red when ripe

"plumaria sapone"

large liana hanging
from trees, fls. whitish, fruit white,
1-seeded "benesimque" for ulcers
shrub 4 m. tall, flowers
orange-red, fruit immature
culms ascending

erect

1942/68

wet rocks above river

- 3 69 *Helaginella*
clothing the surface of wet
rocks above river.
- 2 70 *Adiantum*
wet crevices under overhanging rocks
- 1 71 *Helaginella*
on wet rocks above river
- 4 72 *Adiantum*
on wet rocks above river
- 5 73 *Helaginella*
on wet rocks above river
- 3 74 *Bixa*
wooded slope along trail above river
- 1 75 *Anemia clinata* Mickel det. J.T. Mickel 1966
vertical earth bank, densely
clothing the bank.
- 1 76 *Rubus*
along trail in moist forest
- 1 77 *Melastoma*
along trail in moist forest
- 3 78 *Passiflora*
along trail in small clearing
in moist forest.
- 3 79 *Wallisia*
along trail in small clearing
in moist woods, common
- 3 80 *Passiflora*
edge of woods, climbing in bushes
- 1 81 *Passiflora*
edge of clearing in moist woods

"Pana silvestris"

basal decumbent, stem erect,
flowers horizontal, corolla brilliant
scarlet outside, lobes green
speckled with black within
pale green, growing downwards
on vertical rock surface.

stipe erect, fronds deflexed
to present flat surface to light
stipes erect, blades deflexed,
turned to light.

shrub 3 m. tall, fruit green,
spines soft, leaves bronzed
beneath "achote"

suffrutescent herb 7 dm. tall,
inflorescences purple, fruit immature.
herb 7 dm. tall, fls. white

herb 1.5 m. tall, fls. white,
leaves slightly aromatic when broken

erect suffrutescent herb
1.5 - 2 m. tall, flowers white.

woody vine, flowers yellow.

spreading tree 7 m. tall,
flowers white

- 19482 *Vernonia*
edge of clearing in moist woods.
- 83 *Mikania*
edge of clearing in moist woods
- 84 *Vernonia*
edge of clearing in moist woods
- 85 *Abutilon*
clearing in moist woods
- 86 *Cassia*
edge of clearing in moist woods
- 87 *Juadiala*
clearing in moist woods
- 88 *Modiola caroliniana*
clearing in moist woods
- 89 *Hyptis*
clearing in moist woods
- 90 *Boreia*
clearing in moist woods
- 91 *Drymaria cordata*
clearing in moist woods
- 92 *Halimolobos*
rocky side of shaded ravine
- 93 *Psychotria*
moist woods

Dec. 22 Las Lagartijas
Plateau between the
Rio Duda and Rio Papamene,
on trail from Colombia to Uribe,
east of Changuacardo, 5-6
km. n.e.w. of Uribe Meta
dense moist forest, along
cleared trail

- semiscandent shrub
2 m. tall, fls. purple
- vine climbing in trees,
flowers white, almost odorless.
- vine climbing in trees, flowers
white
- woody herb 1.5 m. tall, fls.
white.
- vine climbing in trees,
fls. white, corolla flat-topped, fruit green.
- spreading herb fls. yellow,
very small, 5 mm across.
- erect suffrutescent herb
1 m. tall, fls. pink
- "botoncilla" fls. white.
- "descanso" diffuse herb, fls. white
- "oreja de raton" pedicels sticky
when in fruit
- herb 7 dm. tall, bracts bronze-
purple, corolla white
- green stemmed slender shrub,
fruits red.

L 19494 *Cephaelis*

L 1 95 *Psychotria*

L 4 96 *Cephaelis*

L 3 97 *Randia* (Duroia)

L 3 98 *Psychotria*

L 3 99 *Psychotria*

in thin places in forest

L 19500 *Psychotria*

L 1 01 *Psychotria*

La Lagartija.

Dec. 22 - Plateau between
Rio Ludo and Rio Papamene, trail
from Colombia to Uribe, west
of Chambuscado, 8-9 km. n.e. of
Uribe

Meta

dense moist woods

3500 ft

L 2 02 *Psychotria*

L 3 03 *Jussiaea umbellifera*

L 4 04 *Chusquea*

L 1 05 *Remigia pedunculata*

3500 ft. shrub 2 m. tall, bracts & buds
white, stems green.

2500 ft. shrub 1 m. tall, buds white.

2500 ft. shrub 1 m. tall, rather stiff,
stems green, bracts purple,
fruits very juicy, flesh
translucent, pale lavender.

2500 ft. slender tree 4 m. tall, 3 cm. thick,
fruits green.

2500 ft. shrub 2 m. tall, fruit immature
forming tangles several
meters deep.

vine climbing in shrubs,

fls. white.

shrub 1.5 m. tall, fl. white,
old inflorescence purple

shrub 2 m. tall, fl. white

tree 5 m. tall, fruit immature
liana forming dense tangles,

~~branches~~ culms hanging

from trees have branches
reflexed upward, all plants

in region in flower.

small tree, fruit immature

✓ Dec. 23 - Valley of Rio Papamene,
Colombia - Uribe trail.

Meta

Flat, wet bottom-lands,
with dense jungle 2500 ft.

19515

2 16 Jussiaea
opening

2 17

2 18 Psychotria

4 19 Lasiacis

1 20 Psychotria

3 21 Malachra
weedy clearing

✓ Dec. 23 - ~~ridge at east~~
Papamene valley, east slope
of ridge bet. ~~Pape~~ Rio Papamene
and Rio Tigre, ~~Colombia~~ -
Uribe trail.

Meta

Wet forest 2500 - 3500 ft.

1 22

on trunk of partly fallen tree

1 23

1 24 Cephraelis

3 25 Canna

herbaceous vine, corolla yellowish,
green, fruit immature

erect herb, ~~erect~~ 1 m. tall,

corolla yellow

shrub, fruit blue

shrub 1 m. tall, fruit white,
flowers white

climbing in bushes, ^{ripe fruit} black

shrub 2 m. tall, fruit immature

herb 1 m. tall, fls. bright
yellow "malva" see Rodriguez

2500 ft.

leaves ~~thick~~ coriaceous, flowers
yellow-green

3000 ft.

shrub 1 m. tall, fruit orange-red

3500 ft.

shrub 1 m. tall, fruits blue

3500 ft.

1.5 m. tall, flowers ~~cream~~

~~flowers~~ cream-white,

arranged spirally, ovary

dull white, very fleshy and

rugose, 3 lobed, each lobe

deeply grooved vertically, sepals

dark green, petals white, bracts green

19526

2 27 *Rondeletia*

Quebrada Diluvio.

3 Dec. 23 - affluent of Rio Tigre
below ~~Cartagena~~ Cartagena, Colombia. Uribe ³⁰⁰⁰ ft
trail, 30 km. ^{2.5} of Colombia MetaWashed bluffs;
28 *Liparuna*1 29 *Remigia pedunculata*Dec. 23 - "Cartagena, Colombia-Uribe
trail, on Rio Tigre, 40 km. ^{2.5} of Colombia
MetaCleared ~~to~~ wet bottom-land, 2000 ft.
somewhat grown up with bushes.2 30 *Liabum*

common

1 31 *Didia ocimifolia* (Willd.) Bren.1 31 *Marattia*

climbing, twining around bushes.

2 32 *Coffea*

growing up through grass and weeds

3 34 *Liparuna*3 35 *Vernonia*1 36 *Cephaelis*small tree, wood soft, inflorescence
in fruit long and pendent,
fruit flesh-color, fleshy
shrub somewhat scandent,
2 m. tall.erect suffrutescent herb,
1.5 m. tall.sterile shoot, large sterile
tree nearby.erect or reclining herb, ~~1.5 m.~~
1-1.5 m. tall, fls. bright yellow.

fls. white

vine, flowers bright red with
yellow hair in center.

fls. yellow.

shrub 1.5 m. tall, strongly
scented of lemon grass oil.

herb 2 m. tall, fls. lavender

shrub 2 m. tall, fls. campanulate,
white but bluish or purplish
on outside of corolla lobes,
bracts white. stems green.

19537

Dec. 23 - Buenavista, ~~to~~ 10. of
Rio Tigre on Colombia - Uribe Trail,
26 km. e.s.e. of Colombia Meta

38

along trail in wet forest, common
Blechnum
in wet woods

39

Dec. 24 - Colomb - Uribe Trail, between
Buenavista and La Rucio (pass),
25 km. e.s.e. of Colombia Meta

40

trail on steep wooded slope

41

cleared trail in wet forest on more or
less level ground, white sand

42

cleared trail in wet forest, ^{white sand} more or less level

43

Panicum

cleared trail in wet forest, ^{white sand} more or less level

44

Nertera granadensis (L.f.) Druse

cleared trail in wet forest, ^{level, white sand}

45

~~Jussiaea~~ Ludwigia leptocarpa (Muhl.) ^{det. Schumann}
edge of cleared trail in wet forest,
level, white sand

46

wet forest, level ground

47

Coccyzsaelum

cleared trail in level wet forest

48

Blechnum

dense wet forest

culms ascending

3700 ft. leaves dark green, flowers

white, fruit immature

4500 ft. rhizome short, erect, ~~fronds~~
fertile fronds erect, sterile
somewhat spreading.

herb 0.7 m. tall, fls. ranged red,
little latex.

5000 ft

small tree 5 m. tall, flowers
white, fruit immature.

5000 ft.

5000 ft.

5000 ft.

5000 ft.

5000 ft.

prostrate, leaves dark green, fruit
translucent coral red.

5000 ft

herbaceous, vine-like, climbing
4 m. in a tree, fls. yellow.

5000 ft

shrub.

5000 ft

fls. bright purple

5000 ft.

climbing, rhizome 4 m. long, clinging
to tree by many fibrous roots, fronds
in upper half

- 19549 *Psychotria*
dense wet forest
- 50 *Blechnum*
dense wet forest
- 51 *Blechnum*
— dense wet forest
— same loc., just below La Rucis
- 52 *Psychotria*
dense wet forest, steep slope, trail
- 53 *Hoffmannia*
dense wet forest, steep slope, trail
- 55 *Peperomia*
trail in dense wet forest, steep slope

✓ Dec. 21 - Colombia - Uribe trail,
headwaters of Rio Ambica, just below
La Rucis (Pass) or Paso de las Cruces
Huila.

- 56 *Psychotria*
dense wet forest
- 57 *Palicourea*
dense wet forest
- 58 *Viola*
mossy rocks in trail in dense, wet woods

- 5500 ft. shrub 2 m. tall, fls. white.
rhizome very short, prostrate
on ground, fronds climbing,
up to 10 m. long, lower 2-3 m.
naked, the rest with opposite
or subopposite pinnas about
15 cm. apart. frond twining
in trees, this plant sterile,
— as far as I could see.
same as # 519550, but from
hanging portion of a fertile
frond of another plant.
- 6000 ft. erect herb, ~~fls. white~~ 1-2 m. tall,
unbranched or almost so.
— flowers and mature fruit white.
- 6000 ft. erect herb 2 m. tall, fls. yellowish
— fruit immature
- 6500 ft. herb up to 1 m. tall, fls. green,
fruit bright purple when
ripe.
- ~~6500 ft.~~
6500 ft. shrub 1.5 m. tall, fls. pink
— infl. purple, lvs. pale beneath
- 6500 ft. shrub 2 m. tall infl. reddish,
fls. brown - yellow.
- 6000 ft. fls. pale lavender, marked with
purple.

✓ Dec. 24 - Upper Rio Ambica, bet. La
Ruca and confluence with ~~Rio~~
Quebrada Trinidad

Huila

- 19559 *Polypodium*
wet forest
60 *Polypodium*
among rocks on trail in wet forest
61 *Polypodium*
trail in wet forest
62 *Polypodium*
wet forest

✓ Dec. 24 - Upper Rio Ambica, at confluence
with Quebrada Trinidad.

Huila

- 63 *Trichomanes*
on ^{dry} rock beside river
64 *Trichomanes*
in trail beside river, mud
65 *Viola*
in shade of log, on rock in river
66 *Polypodium*
base of dry rock near river
67
rocks near river

✓ Dec. 24 - Rio Ambica, near confluence
of Quebrada San Pedro

Huila

- 68 *Chusquea*
dense moist forest

5800 ft

pendent from tree

fls. white

5000 ft.

5000 ft.

herb 0.5 m. tall, fls. deep
scarlet, anthers purplish
pendent from mossy tree trunk.

fronds stiff, reflexed.

prostrate, stems fleshy,
fls. purplish.

prostrate, clinging to rock,
fls. lavender, purplish near center.

small tree, 5 m. tall (others
larger) inflorescences pendent,
with white-pinkish bracts.

~~from~~ liana forming dense
tangles, pendent ~~to~~ culms
with reflexed branches,
flowering all thru region at this alt.

Dec. 25 - Antillas, e. side of Rio Blanco,

Huila

5500 ft.

19569

Moist forest on slope

Cinchona officinalis L.dense forest, mostly *Quercus*anal. Ballis:
Q+C 2.8%
Ci 0.3%
Gu 0.1%
TC 3.1%

70

*Cinchona officinalis*dense forest mostly *Quercus*

(Q. 10% leaflet, 6.0%)

anal. Ballis:
Q+C 2.8%
Ci 0.3%
Gu 0.1%
TC 3.1%

71

Cinchona officinalis

dense forest

Bark thick
sapling in wood
Bark thinall these
anal. Ballis:
Q+C 2.8%
Ci 0.3%
Gu 0.1%
TC 3.1%

72

Croton

73

*Boreia*cleared slope near edge of forest,
in deep grass

74

Gymnosiphon

in humus in dense forest

75

Guettarda

cleared slope

Bark

only one *quina* here, rather common in part of forest we visited, partly said to be an old plantation, but this not distinguishable from others. About 20 trees per hectare on h. Julio P. Bernal's holding said to be same in all 1 hectare around upper Rio Blanco.

small tree 3 m. tall, 5 cm. thick, leaves dark green, petioles red, flowers purple. (bark sample) hair on corolla lobes white 2-3 mm thick

tree 15 m. tall, 2.5 dm. thick, leaves dark green above "quina roada" (bark sample) "quina colorada" "calisaya" (4-7 m.)

tree 10 m. tall, 8 cm. thick (bark had been previously removed from lower part), leaves dark green, ~~flowers~~ stems and petioles + midvein red, flowers purple, hair on corolla lobes white bark thick, ~~reddish~~ somewhat split, bitter, whitish but quickly oxidizing brown. (bark sample) 3-11 mm.

liana, fls. white.

erect, fls. white, corolla hairy within.

erect, leafless, fls. white, nodding.

clump of sprouts from stump, fls. white, edges of corolla lobes ^{thin} crisped. fruit immature.

- 19576 Polypodium
on tree-trunks
- 77 grassy slope
cleared slope abundant
- 78 Gnaphalium
open grassy slopes
- 79 Marrubium vulgare
open grassy slope
- Dec. 26 - Hillside above Colombia,
Huila 3100 - 3500 ft.
overgrazed, eroded, almost
treeless steep slope
- 80 Salvia
- 81 ~~Festuca~~ Aristida
- 82 Delilia biflora
sides of gully
- 83 Croton
sides of gully, under tree
- 84 Prophyllum nudicale
sides of gully
- 85 Euphorbia
sides of gully
- 86 Tillandsia
on Bursera tree (with #19587 + #19588)
- 87 Tillandsia
on Bursera tree (with #19586 + #19588)
- 88 Tillandsia
on Bursera tree (with #19586 + #19587)
- 89 Chloris
- 90 Tricachne
abundant

fronds stiff

up to 2 m. tall
"chupis", said to be very good
stock feed.

"vitavita", infusion very
bitter, used for fever.

"salvia", used for paralysis

flowers blue, not eaten by stock
tuft, culms spreading
flowers yellow

"mosqueros"

glaucous, very bad odor.

bracts pink glands white.

in large clumps, bracts red,
flowers yellow.
abundant

clumps, bracts red, fls. blue

small tufts

tufts, culms spreading & erect.

- 19591 *Setaria*
 92 *Waltheria*
 93
 94
 95 *Phoradendron*
 parasitic on *Proserpinaca* sp. (?)
 96 *Borreria*
 bare sides of gully
 97 *Tridax procumbens*
 gully
 98
 side of gully
 99 *Dalechampia*
 rocky gully
 19600 *Acalypha*
 rocky gully
 01 *Boerhaavia*
 rocky gully
 02 *Abutilon*
 one of the most abundant
 plants on slope
 03
 04
 rare
 05 *Abutilon*
 one of the most abundant plants
 on slope

- tufts, culms spreading
 stems ascending, to 0.7 m., flowers
 yellow
 strongly aromatic, fls. white.
 fls. white.
 bright green, ripe fruit orange.
 fls. white
 involucre purplish, rays
 white, disk yellow.
 prostrate, rooting at nodes
 prostrate, flowers greenish,
 between large bracts.
 low shrub, browsed by
 stock.
 perennial herb, up to 1 m.
 long, many stems from
 one root, ascending, fls.
 deep rose.
 fls. deep orange, plant
 evidently unpalatable to
 stock.
 erect, flowers yellow
 shrub 1.5 m. tall, fruit
 yellow. herbage with an
 unpleasant odor when broken.
 erect, fls. orange yellow, plant
 evidently unpalatable to
 stock.

Dec. 26 - Colombia, on Rio Ambica,
Huila
3000 ft.

broad stony bed of river

- L 19606 Boneria
- L 307 Richardia
- L 203 Euphorbia
- L 09 Cyperus (Xyllinga) ~~bracteatus~~
- L 10 Ipomoea
- L 11 Vernonia
- L 12 Vernonia
abundant
- L 13 Ipomoea
- L 14 Boneria

Dec. 28 - ~~at~~ Quebrada Ariari
above Galilea. 7 km. ~~to~~ Galilea de
Mun. de Colombia, 25 km. S.W. of Huila
Rain forest on side of canyon, ^{2000-2500 ft.} ~~6000 ft.~~

with clearings here and there.

- L 15 Psychotria
along trail in forest
- L 16 Galium (Helbanium) hypocarpium
edge of clearing
- L 17 Lycopodium
on trees in recently felled forest

- erect, fls. white
- prostrate, fls. white.
- ascending, arching, glands white.
- tufts between stones, creeping
- slant on bank, heads green.
- prostrate extensive spreading
- vine, fls. lavender.
- herb 2 m. tall, fls. purple.
- bush 2 m. tall, much
- branched, forming dense
- masses, fls. white
- prostrate branching vine
- several m. long, fls. bright
- yellow, stigma vivid, lobes
- sharply diverging some-
- what enlarged.
- fls. white

gall trees with sprouts
along trunk, fls. white,
fruits green.
vine climbing in bushes,
fruit fleshy, orange.

- 1961 7a *Sphenomeris*
on tree in recently felled forest
- 10 17 *Cinchona pubescens* Vahl
abundant in forest just
above stream
- 3 19 *Palicourea*
wet forest
- 3 20 *Gynandropsis*
wet forest
- 6 21 *Cinchona parviflora* Vahl
wet forest
- 4 22 *Hoffmannia*
wet forest
- 10 23 *Ladenbergia*
wet forest
- 4 24 *Cinchona officinalis*
wet forest, rare.
- 7 25 *Fuchsia*
in bushy clearing
- 3 26 *Piper*
wet forest
- 5 27 *Smilax*
wet forest, on ground

anal. Bellis:
no more than
traces of
cinchona
alkaloids.

anal. Bellis:
Qa = 3.9 g+C 4.1%
Qa = 0.2 (QSO₄) 5.3%
Ci 0.4%
Fui 0.1%
TC 4.6%

anal. Bellis:
g+C 0.7%
Ci 0.8%
Fui Tr.
TC 1.5%

tree 15 m tall, 25 dm thick,
some leaves red, all with
slightly reddish veins,
fruit immature, bark
bitter. (Bark sample)

tree 5 m tall, spreading
infl. yellow, fls. pale yellow
herb 1.5 m. tall, flowers red, fruit
immature

anal. Bellis:
g+C 1.1%
Ci 2.0%
Fui Tr.
TC 3.1%

tree 15 m. tall, 3 dm. thick,
some leaves red, veins
of others slightly reddish,
fruits immature (Bark sample)

erect herb, 1.5 m. tall, fls.
reddish yellow

6.5 m. tall, tree 20 m. tall, 3 dm. thick,
fruits mostly immature.
(Bark sample)

5.5 m. tall, sprouts from an old tree
broken off about 4 m. up
no fertile trees seen. leaves
green (Bark sample)

vine, fls. pendent, scarlet
shrub 1 m. tall.

~~terrestrial~~, erect, fls. white.

- 19623 *Cinchona officinalis*
small group in wet forest
- 29 *Vaccinium*
epiphytic in wet forest
- 30 *Phytolacca bogotensis*
abundant in clearing
- 31 *Psychotria*
wet forest along trail
- 32 *Brevis*
weed in clearing
- 33 *Gynandropsis*
~~in clearing~~ weed in clearing
- 34 *Passiflora*
along trail in wet forest
- 35 *Lasiacis*
along trail in wet forest
- 36 *Blechnum*
edge of clearing
- 37 *Asplenium*
edge of clearing

Dec. 29 - Small affluent of Quebrada Ariari on south side below Galilea, Fraccion Galilea de Muñ. de Colombia, Huila

Small patch of woods on slope 5500 ft

- 38 *Desmanthus*
- 39 *Phyllanthus*
- 40 *Montanoa*

- 6500 ft. very small tree, sterile, veins of leaves reddish.
pendent vertically from trees, up to 5 m. long, fls. coral red with green tips.
- 5500 ft. herb, 1 m. tall, fls. pink, fruit immature
erect herb, 1 m. tall, fruit white, fleshy
fls. white
- erect herb 2 m. tall, flowers dark red, racemes erect, fruits green
- herb 1.5 m. tall, fls. and fruits orange.
- vine-like, tangled in undergrowth
grows strongly ascending from an erect rhizome.

liana climbing in trees fls. whitish

fls. pale green.
small tree 5 m. tall, 1 dm. thick, rays white, disk yellow

Dec. 29 - Ridge bet. Quebrada
Ariari and Quebrada San Blas,

Traccion Galilea de Mun. de Colombia

Huila

Patch of wet woods on 6000 ft.
steep slope

19641

42 Palicourea

43 Hoffmannia

44 Psychotria

45 Comp.

clearing, at edge of woods abundant

46 Quercus

abundant, major part of woods

47 Palicourea

48 Calypanthe liparura

49 Lasiacis

50 Palicourea

51 Lobelia

clearing, along trickle of water,

erect shrub with main
stem and horizontal branches,
fruit green

shrub 1.5 m. tall, fls. bright
purple, infl. green.

erect, ^{unbranched} shrub, fls. yellow
fruit maroon, fleshy.

erect unbranched or sparsely
branched herb, fls. and
fruits white.

suffrutescent herb 2.5 m.
tall, fls. yellow "flora amarilla"
tree 12 m. tall.

shrub 3 m. tall, thyrses purple,
fruit green, immature

semi-scandent shrub, 5-6 m.
long, leaning on other shrubs,
odor of lemon-grass, fruit
reddish, pyriform, fleshy.

low tangles in undergrowth.
shrub 2 m. tall, infl. green.
fls. flesh color, mature fruit
black.

erect herb 1 m. tall, lactiferous,
fls. green, corolla lobes tipped
with maroon.

Dec. 29 - ridge s of Quebrada
San Blas, Galilea trail, Fraccion
El Valle de Muñ. de Colombia,
Huila

5000 ft.

brushy clearings and pastures

19492 *Dieckmannia fruticosa* (Willd.) O.K.
rocky place

53 *Viburnum*
fence-row, common

54 *Borreria*
pasture, common

55 *Drosera*
pasture, rare

56 *Myrsine*
fence-row, common

57 *Wernmannia*
fence-row, abundant

58 *Eugenia*
fence-row, abundant

59 *Ladenbergia magnifolia*
fence-row, rare

60 *Escobedia*
~~Escobedia~~

Rocky knob with bushy
vegetation

61 *Allamanda*

62 *Liphocampylus planchonis* W. & A.
det. R. Mev.

fls. white, fruit immature

small tree, fruit black.

fls. white

fls. pale lavender.

small tree, fruit immature
"cucharo blanco"

small tree, 5 m. tall, fls.
whitish, "insensibles" Tarallan

small tree, 5 m. tall, 5 cm.
thick, ripe fruit purple-black.

tree 10 m. tall, 2 dm. thick,
fruit clusters somewhat
pendent, leaves glossy (dark sample)

"cascarilla"
erect, fls. white "used for
coloring food."

"fls. eaten for sore throat."
vine creeping on ground and
climbing small bushes,
fls. yellow, reddish outside
suffrutescent herb, 0.7 m.
tall, fls. bright red.

anal. Bellis
not more
than traces
of cinchona
alkaloids

Dec. 29 - slope on north side
of quebrada del Chilcal
E. of Colombia, Huila
Dry, sparsely wooded slope 4000 ft

19663

64

Capparis

65

66

Zanthoxylum

Vitellina.

Jan 4, 1943 - Bogota Water Works,
San Cristobal, just south of
Bogota, Cundinamarca 8800 ft.

Brushy slopes, somewhat
grazed.

67

Euphorbia

68

Stevia

69

Eccremis coarctata (R. & P.) Benth.

70

Orchid

wet place

71

Vand.?

base spot

"Farallan"

- bush 3 m tall, fruit black.
small tree 5 m tall, fls. white,
leaves finely pellucid, reticulate,
coriaceous.

- small bushy tree, fls. yellow.
small bushy tree or shrub,
leaves aromatic when broken,
fruit immature "tachuelo"

plant with resinous odor,
almost acaulescent, leaves
in a large rosette, ~~at~~ stiff,
gray. Inflorescences erect,
rays bright chrome yellow,
disk brownish yellow.

- shrub less than 1 m tall, fls.
white.

- solitary or in very small
clumps, flowers lavender-blue.
petals 5, sepals mesothel
pale lavender-pink, epichile
with body yellow, wings white.
leaves fleshy, distichous.
more or less prostrate, calyx
dappled purple, corolla greenish-white.

- 19477 *Polygonum segetum* HBK. det. M.C.F.
 edge of rivulet
 877 *Rubus*
 774 *Gaultheria*
 775 *Galium*
 weed in edge of water works lawn.
 776 *Castilleja*
 in edge of brush and in
 water works lawn.
 777 *Scroph.*
 weed in water works lawn.
 778 *Carex*
 edge of rivulet
 779 *Solanum*
 780 *Boragin.*
 781 *Stepia*
 782 *Rubus*
 783 *Boragin.*
 road cut
 784 *Alchemilla*
 roadside
 785 *Vernonia*

erect, fls. pink

canes arching, forming
dense tangles, plants
sticky glandular, fruits
mostly immature, fls
pale pink.

flowers white, fruit
white, fleshy.

prostrate, fls + fruits green

calyx and bracts green at
base, scarlet distally,
galea bright green, range
along lower edge.

erect, fls. salmon-pink.

large clump, culms
almost erect.

spreading shrub 2 m. tall, fls.

white, fruit immature.

prostrate to erect, fls. white

shrub 1 m. tall, very sticky,

corolla pendent, fls. pink.

low bush, 0.6-0.8 m. tall, tangled,

fls. white, ripe fruit black,

mostly immature.

no primocanes seen.

prostrate, fls. white

within, purplish without

prostrate to ascending

shrub 1 m. tall, infl. very sticky,
involucre deep red-purple, fls. lavender-
pink.

✓ Jan. 10. - Foothills above
Bogota just north of mouth
of Quebrada El Obispo Cundinamarca
rocky ridge covered with brush. 2700 m.

19686

Gnaphalium

87

Gnaphalium

Ann. Mo. Bot. Gard. 55: 245, fig. 19, 1968

88

Polypodium erythrorhizon var. villosum A.M.
steep slope, sheltered by
bushes.

89

Muehlenbeckia tamnifolia HBK.

90

Gnaphalium
abundant

91

Lonicera
steep slope

92

Gnaphalium
steep slope, sheltered by bushes

93

Gnaphalium
steep slope, sheltered by bushes

94

Asplenium
steep slope, sheltered by bushes

95

Cuscuta
steep slope, sheltered by bushes, rare

herb 2 m tall, growing up
through brush, branching
about half way up.
leaves green above.

low bushy, up to 1 m.
tall when in bushes, heads
slightly yellowish.

(sample for analysis)
fronds erect or somewhat
spreading, sori yellow.

low vine, tangled in
bushes, buds reddish,
flowers green with yellow
stamens.

shrub 2-4 m. tall, flowers
and racemes bright coral-
pink, mature fruit black,
fleshy (very few mature).
vine tangled in shrubs,
flowers green.

fronds erect

plants ascending, fls. fleshy,
fls. bright magenta

Evans
type

- 19696 *Rhynchospora*
steep slope
- 97 *Palicourea*
steep slope
- 98 *Bidens*
steep slope
- 99 *Castilleja*
steep slope
- 19700 *Palicourea*
steep slope
- 01 *Miconia*
- 02 *Hedyotis*
common
- 03 *Galium*
- 04 *Andropogon*
steep slope
- 05 *Vallea stipularis*
steep slope
- 06 *Befaria*

- scape ascending, arching,
plant ~~scandent~~ somewhat caespitose.
- shrub 1 m. tall, inflorescences
purplish, corolla deep
red-purple.
- herb up to 2.5 m. tall, ~~erect~~,
rays bright yellow, reddish
at base, disk brownish
orange.
- herb 1 m. tall, distal
part of upper bracts and
calyx vermillion, galea
green with lower edge
yellow.
- shrub 5 m. tall, leaves
glossy, stiff, paler beneath,
ripe fruit glossy, orange-yellow.
- shrub 2 m. tall, flower
white.
- shrub 0.4 - 0.5 m. tall, flowers
white, corolla lobes purple
outside, especially toward
tips.
- vine-like, tangled in
bushes.
- erect, shrubby at base, 3 m. tall,
flowers deep magenta,
leaves fleshy, distichous,
center of lip orange, fruit
obovoid.
- shrub 2.5 m. tall, fls. rose,
- low shrub, flowers bright
rose, very sticky.

150

1943 - Colombia

19707 Berberis

L 08 *Siphocampylus columnae*
common det. P. M. V.9 09 *Dioscorea*
abundant on ledges and in crevicesJan. 16 - hill about 1 km. south
of Tortelacullaz, 20 km. e. of Neiva
Huilabushy vegetation on soil
formed of ~~sedimentary~~ decomposed
sedimentary rock.10 *Dioscorea*
road cut11 *Dieckhousia fruticosa*12 *Eupatorium*13 *Borreria*
rather abundant14 *Labiata*?15 *Borreria*16 *Ancistrum*17 *Convolvulus*18 *Aporosa*

Cundinamarca - Huila 151

shrub about 1 m. tall,
leaves stiff, white beneath,
flowers orange-yellow.
shrub up to 2 m. tall,
corolla orange with green
lobes.flowers greenish yellow,
with an unpleasant odor.
leaves fleshyprostrate, stiff, ~~stems~~
much branched; flowers
pale lavender.

erect, flowers white

erect herb, up to 1 m.

tall, fls. purplish-white,
extensively branching

herb, flowers white.

flowers white or very pale
lavender.weakly ascending, fls. white,
tufts, rhizome short,

prostrate, fruiting spikes

ascending or erect.

shrub 1 m. tall, head yellow

lactiferous vine twining over bushes, fl. rich yellow,
reddish outside, fruit immatures, tomentose.

19719 *Coupe*20 *Santana*
roadside21 *Richardia*Jan. 17 - Finca Cedral, on Rio
Fortelacillas above Vega
Larga.

Huila

rather weedy coffee plantation
without much shade, a
few trees along the top of the
cliff along the river. 3500m22 *Blechnum*
rock wall between trail
and plantation23 *Nephrolepis*
rock wall between trail
and plantation24 *Iresine*25 *Drymaria cordata*
in soil pocket on rock, no plant seenerect herb, 1 m. tall, heads
whitish.
shrub less than 1 m. tall,
flowers violet, fruits
deeper purple, (fruits
from different plant than
flowering twigs).
prostrate, fls. very pale
lavender, involucre
whitish outside.

fronds are lying, plane.

herb, main stem prostrate,
branches erect or ascending.
"contra fuego" ~~and~~ leaves
rubbed and crushed in
cold water for red irritated
skin resulting from kidney
trouble.
fruiting pedicels sticky.

- 19726 *Borreria*
 27 *Vitis*
 in trees at edge of ravine
 28 *Platanus*
 29 *Tournefortia*
 edge of cliff
 30 *Hamelia*
 edge of cliff
 31 *Cissampelos*
 edge of cliff
 32 *Galinsoga*
 weed
 33 *Clematis*
 34 *Triumfetta*
 35 *Morisonia*
 36 *Hamelia*
 weed in plantation, common
 37 *Oplismenus*
 carpeting ground in plantation
 38 *Salvia*
 weed, common

- fls. white.
 woody vine, climbing in trees
 shrub about 0.5 m. tall, much
 branched.
 small tree 5 m. tall, flowers
 white.
 shrub 2 m. tall, fls. orange
 red, fruit dark red, shiny
 when ripe. All trees examined
 have leaves ternate.
 vine climbing in trees,
 fruit green, leaves glaucous
 beneath.
 disk yellow, rays white.
 vine climbing in trees
 flowers white.
 erect suffrutescent herb
 almost 2 m. tall, branched
 only above. flowers yellow
 suffrutescent herb 1 m. tall,
 fls. dark indigo, with yellow to
 greenish brown keel. ~~yellow~~
 tree 5-6 m. tall, flowers orange
 red, fruit immature; all
 plants examined have
 ternate leaves.
 prostrate, fruiting culms
 ascending.
 flowers blue.

Jan. 18 - Finca Yucalles, on Rio
Fortelacillas

Huila

wet mossy forest on steep
side of valley

19739

Cinchona pubescens Vahl
side of ravine above river

40 *Cupressus*

in pasture near house

41 *Cinchona pubescens*

side of ravine above river

42 *Palicourea*

side of ravine above river

43 *Eupatorium*

weed in pasture

44 *Fruchsi*

side of ravine

45 *Eupatorium*

steep slope, edge of woods

small tree 7 m. tall 6-8 cm.
thick, leaves green beneath,
midrib and veins reddish,
sterile, stipules erect or
somewhat spreading, then
spreading much more
just before falling. "guiso"
large old tree 15 m. tall, 7 dm.
or more thick.

small slender tree 5 m.
tall, leaves roseate-coppery
beneath, stipules first
erect, then becoming red and
strongly spreading; sterile. "guiso"
small tree 5 m. tall, thyrse
yellow, flowers yellow,
fruit immature.

suffrutescent herb 1.5 m.
tall, somewhat virgately
branched, branches ascending,
fls. purple.

vine-like shrub climbing
in lower branches of trees,
flowers pendent, as many
as 6 or 8 in a cluster, ripe
fruit fleshy, purple.

suffrutescent herb 1 m. tall,
fls. white

19746

47 *Palicourea*48 *Lanicula*

Trail on steep slope

49 *Psychotria*

along trail on steep slope

50 *Psychotria*51 *Polypodium*52 *Asplenium*53 *Psychotria*54 *Cinchona pubescens* Vahl55 *Palicourea*56 *Palicourea*57 *Psychotria*58 *Cinchona pubescens* Vahl.

small tree, somewhat aromatic when broken, fruits mostly immature.

shrub 3 m. tall, scarcely branched, fruits mostly immature, blue when mature - strong odor when broken.

suffrutescent herb about 1 m. tall, fls. white.

shrub 2.5 m. tall, fls. white, fruit immature.

climbing up trunk of *Cinchona* tree.

epiphytic in *Cinchona* tree - woody vine climbing in tops of trees, flowers white.

Anal. Bellis: Tree 18 m. tall, 2 dm. thick, g+c 1.2%, leaves with veins reddish beneath, stipules erect, becoming reflexed. Bark whitish, oxidizing brown (Bark sample). Tree sterile.

slender shrub 3 m. tall, fls. bright purple.

semiscandent shrub, buds white, fruit large, fleshy, white.

slender shrub 4 m. tall, fls. white, fruits immature.

Anal. Bellis: Tree 10 m. tall, 1 dm. thick, g+c 0.4%, leaves roseate-coppery beneath, stipules erect, then spreading and becoming reddish (bark sample)

Jan. 13, ~~1943~~ - Finca Cedrales,
on Rio Fortelacillas,

Huila

pasture on steep slope with
small patches of trees in
ravines and on steepest places.

19759

~~Capparis~~

~~cut bank~~ cut bank above trail

60 *Dioscorea*

in trees on steep slope

61 *Stellaria*

cut bank above trail

62 *Dioscorea*

in trees on slope

63 *Tournefortia*

open slope below trail

64 *Borreria*

65 *Capsicum* ~~adpressum~~

66 ~~capit~~

Jan 13 - Valley of Rio Fortelacillas
2-3 km. above Finca Cedrales,

Huila

Pasture with moist forest
along stream.

67 *Lolium*

in very small ^{open} ravine

spreading

vine climbing in trees, staminate
flowers greenish. lvs. glossy
prostrate, fls. white

vine climbing in trees,
pistillate fls. greenish.
leaves glossy

low shrub, spreading,
fls. white.

fls. white.

small tree, ~~fls. white~~ 5 m.
tall, 8 cm. thick, fls. white.

fruit green.

small tree, fls. brownish.

suffrutescent herb 1.5 m. tall,
even stem covered with prickles,
fls. yellow, fruits variegated, green
and greenish white, immature.

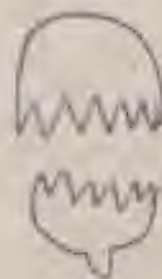
- 19768 *Pilea*
bottom of tiny open ravine
- 1 69 *Pilea*
bottom of tiny open ravine
- 1 70 *Drymaria cordata*
moist open place
- 3 71 *Salvia*
along stream in wooded ravine
- 1 72 *Borreria*
cut bank above trail
- 2 73 *Salvia*
- 1 74 *Galium* (helbunium)
grassy bank
- 1 75 *Pteridium aquilinum*
abundant in pasture
- AD 2 76 *Duchesnea indica*
moist open places
- L 3 77 *Lasiacis*
recently cut over land, grown
up to bushes and canes 2-3 m.
tall.
- 1 78
open pasture
- L 3 79
recently cut over land, grown up to
bushes and canes 2-3 m. tall
- 3 80
recently cut over land, grown up
to bushes and canes 2-3 m. tall.

stems fleshy
stems fleshy, pellucid.

HISTORY AND DESCRIPTION (except American)

Braunthal, Julius.

Need Germany survive? By Julius Braunthal. With an introduction by Harold J. Taski. London, V. Gollancz Ltd, 1943.

256 p. 19^{cm}.1. World war, 1939-
L. Title.
Library of Congress—Peace. 2. World war, 1939-
DS16.B67 1943—Germany.
43-146103
940.531

Dickinson Robert Eric, 1901-

shrub 1 m. tall, fls. orange.
thicket 1 m. tall, fls. yellow.
woody vine, fruits immature

- 19768 *Pilea*
bottom of tiny open ravine
69 *Pilea*
bottom of tiny open ravine
70 *Drymaria cordata*

19829 ~~*Stictocarpus*~~ *Dichondra*
19889 *Conoclinium nuttallii*

78

open pasture

79

recently cut over land, grown up to
bushes and canes 2-3 m. tall

80

recently cut over land, grown up
to bushes and canes 2-3 m. tall

stems fleshy

stems fleshy, pellucid

prostrate to ascending,
pedicels sticky.
erect herb 1 m. tall, others
up to 2 m., fls. scarlet.
fls. white

fls. crimson
fruits orange

rhizomes about 1 dm. or less
underground, horizontal,
extensively creeping.
Many other fronds very
much larger and more complex.
prostrate, fls. yellow,
petals very caducous, fruit
red, fleshy, globose.
canes up to 3 m. tall, arching

shrub 1 m. tall, fls. orange.

thicket 1 m. tall, fls. yellow.

woody vine, fruits immature

- 19768 *Pilea*
bottom of tiny open ravine
- 1 69 *Pilea*
bottom of tiny open ravine
- 1 70 *Drymaria cordata*
moist open place
- 3 71 *Salvia*
along stream in wooded ravine
- 1 72 *Borreria*
cut bank above trail
- 2 73 *Salvia*
- 1 74 *Galium* (helbunium)
grassy bank
- 1 75 *Pteridium aquilinum*
abundant in pasture
- AB 2 76 *Duchesnea indica*
moist open places
- 3 77 *Lasiacis*
recently cut over land, grown
up to bushes and canes 2-3 m.
tall.
- 1 78 *...*
open pasture
- 3 79 *...*
recently cut over land, grown up to
bushes and canes 2-3 m. tall
- 3 80 *...*
recently cut over land, grown up
to bushes and canes 2-3 m. tall.

- stems fleshy
- stems fleshy, pulvinate.
- prostrate to ascending,
pedicels sticky.
erect herb 1 m. tall, others
up to 2 m., fls. scarlet.
- fls. white
- fls. crimson
fruits orange
- rhizomes about 1 dm. or less
underground, horizontal,
extensively creeping.
Many other fronds very
much larger and more complex.
prostrate, fls. yellow,
petals very caducous, fruit
red, fleshy, globose.
- canes up to 3 m. tall, arching
- shrub 1 m. tall, fls. orange.
- thicket 1 m. tall, fls. yellow.
- woody vine, fruits immature

Jan. 19, 1942 - Las Cruces
summit of Cordillera Oriental,

Meta - Huila

19781 Rain forest on ridge 7500 ft.
Palicourea

82 Viola
mossy rocks beside trail

83 Bomarea
in low brush

Jan. 19, - Headwaters of
Rio Fortelacillas below
Las Cruces.

Huila

84 rain forest on steep slope 7300 ft.
Begonia

85 Fuchsia
rare, only 2 plants seen

86 Centropogon

87 Fuchsia

88 Bomarea
common from summit down 1000 ft.

small tree 6 m. tall, inflorescence
- purple, pendent, fls. purple.
prostrate, fls. lavender
with purple-black
- stripes on lower petal.
fls. coral red, leaves
glaucous beneath.
vine-like.

erect herb, 1.5 m. tall,
- flowers scarlet
scandent shrub,
several m. long, apparently
epiphytic; fls. ~~scarlet~~
orange-vermillion.
- fruit immature.
weals shrub 2-3 m. long,
fls. pale salmon with
yellowish corolla lobes,
anthers purplish.
erect herb, 1.5 m. tall, ovary
square in x section, corolla ^{calyx} scarlet
- erect or ascending leaves
glaucous beneath, fls. scarlet.

19789 *Nertera granadensis*
on mossy log.

90

Terrestrial, in moss, rare

91

Tall rain forest, mostly *Quercus*
7000 ft.

92

Polypodium
epiphytic

93

Vaccinium

94

Palicourea
(with *W. R. Hilcockes*)

95

Nertera granadensis
abundant, forming a carpet
along both sides of trail

96

Ladenbergia macrocarpa

Jan. 19 - Rio Fortelacillas above
Yucal

Huila

wet forest on slope

5000 ft.

97

Cinchona pubescens Vahl
fairly common bet. 4000 + 5000 ft.

erect and pendent, berries
scarlet.

scape red, flowers scarlet.

erect herb 1.5 m. tall.

fls. red, purplish toward
tips.

pendent

shrub 2-3 m. tall.

shrub, infl. purple,
fls. yellow. fruit immature
prostrate, fruit scarlet.

Anal. Ballis:
no more than
traces of
Cinchona
alkaloids

tree 15 m tall, 2.5 dm. thick
(bark sample) fruits ^{both} immature
and shattered. stipules, calypters

Anal. Ballis:
g+c. 1.0%
ci 0.4%
fri 1%
TC 1.4%

tree 15 m. tall, 7 dm. thick.
reddish beneath, red veined,
bark very thick below
(bark sample), pinkish white
stipules at first green
and erect, then red and
reflexed.

19798

Viola

mossy bank beside trail

99

Liparura

19800

epiphytic on *Cinchona pubescens*

01

Hydrocotyle

forming carpet along trail

02

*Ladenbergia*Jan. 20 - Valley of Rio Fortelacillas
5 km. above Vega Larga,

Huila

woods on steep slope above
river

3000 m.

03

Cosmibuena

common for some distance along trail

Jan. 20 - Valley of Rio Fortelacillas
2 km. above Vega Larga

Huila 2500 m.

04

in thicket near river

prostrate, fls. pale lavender
with deep purple spot inside
lower petal.small tree 5-6 m. tall, branches
drooping, fruits mostly
below leaves, pyriform,
flesh colored. plant
with ~~slight~~ odor somewhat
like lemon grass. lvs.
very rugose.

fruit green. lvs. coriaceous, glossy

anal. Bellis:
no more
than traces
of cinchona
alkaloids.tree 3 m. tall, $\frac{1}{2}$ dm. thick,
fls. white, jasmine-scented,
fleshy, fruit ^{both} immature and
shattered. Bark whitish
(bark sample)anal. Bellis:
no more
than traces
of cinchona
alkaloids.Tree 15 m. tall, 2 dm. through,
~~bark~~ in bud only bark
thick and juicy, peeling
fairly well. (bark sample)
(corolla lobes imbricate in bud)weak shrub 2 m. tall, fls.
pink, anthers whitish-brown

✓ Jan. 20 - along Rio Fortalecidas below
Vega Larga

thickets near river

Huila
2500 ft.

19805

✓ Jan. 20 - Rosa Blanca, just e. of Palacio,
w. side of valley of a small
affluent of Rio Fortalecidas
shaded bank above trail

Huila

06 Ancimia

✓ Jan. 20 - hill above Palacio,
~~just e.~~ s. of Rio Fortalecidas,

Huila
3000 ft.

07 dwarf forest

08

dense bush on rather moist
hillside, common.

✓ Jan. 20 - to hill w. of Palacio,
s. of Rio Fortalecidas,

Huila
2000 ft.

brushy hillside

09 *Ladenbergia magnifolia*

10 *Borreria*

barren ground along trail

11 *Declieuxia*

barren ground along trail

12 *Cassia*

scandent shrub, orange fls.

shrub 3 m. tall, strongly
scented, somewhat like
lemon grass.

shrub 1 m. tall, fls. rose pink.

clump of stump sprouts about
4 m. tall.

stems ascending, fls. violet
or deep lavender.

fls. white.

small bushes with flat tops, branchlets
more or less in one plane, fls. large, bright yellow.

19313 *Guzmania*
 14 *Liparuna*

Jan. 20 - hill n. of San Antonio, ^{Fortaleza}

Huila

3000 ft.

bushy hillside

15 *Randia*

16 *Andinia*

vertical earth bank above streamlet

17

Jan. 20 - hill s. of ^{San Antonio} Fortaleza,
 s. of Rio San Antonio, 20 km. e. of Neiva

Huila

3000 ft.

weedy thickets, second growth near road

18

19 *Sida*

20 *Dichromena*

shaded bank along old trail

21 *Croton*

along old overgrown trail

22 *Elephantopus*

along old overgrown trail

shrub 1.5 m. tall, fls. white

shrub 1 m. tall, somewhat
 lemon-grass scented, fruits
 pyriform, flesh-pink, immature

erect shrub 2 m. tall, fls. white.
 rosettes

fruiting culms erect

aromatic shrub, fls. purple, others
 seen small trees

suffrutescent herb 1.5 m. tall,
 fls. very small, narrow

small tufts, involucre white
 at base.

others seen later, much larger

fls. pale lavender, almost
 white

✓✓ Jan. 22 - Neiva, Huila 470 m.
roadsides and cultivated places in
low ground.

19823 *Momordica charantia*
abundant weed

11 24 *Corchorus*

✓✓ Jan. 24 - Rio Fortalacillas below
Vega Larga, above Palacio

Huila

2500 ft

25 *Ladenbergia magnifolia*
steep ravine above river, thin woods.

✓✓ Jan. 25 - San Antonio Fortalacillas,
Huila

Huila

2500 ft

climbing in tree in back yard
of house

vine climbing over fences, bushes,
etc. fls. yellow, fruit orange-
red when mature, splitting
into 3 fleshy valves, aril of
seed red, main stem longitudi-
nally corded-striate, somewhat
flattened. "subi oshi" or
"yerba de culebra" (because
snakes supposedly eat
the fruit) (sample sent to
Washington).

suffrutescent herb, fls.
yellow, reddish toward
apex, "escobax real", leaves
rubbed up and eaten for
dysentery.

tree 6 m. tall, a grown stump
sprout, 10 cm. thick, fls.
white, fragrant, ♂

vine, fls. white, fruit pale
green, inflated "cardinalis"

Jan. 25 - Hill s. of San Antonio
 Fortalacillas, s. of Rio San Antonio
 20 km. e. of Heiva

Heiva
 3000 ft

second growth woods, broken
 by bushy places and cultivated
 plots.

19827

Gonzalagunia

28

Barrera

recently disturbed roadside, otherwise
 bare ground.

29

Hydrocotyle

small patch on edge of road-cut

30

Hypoxis

single plant in wet grassy place

31

Quadrus

wooded ravine

This is the common structural
 or timber bamboo in this part
 of Colombia. Its uses are practically
 innumerable. It is one of the
 main building materials in
 poorer houses, forming the
 cross lacing in the mud-and-
 wattle type.

shrub 2 m. tall, fls. white.
 stems purple-black,
 main one erect, fls. white.

prostrate, forming a close mat
 by strongly rooting at nodes,
 fls. greenish-white.
 fl. yellow

canes ^{green} up to 18 m. tall, 15 cm
 thick, ^{very} strong and woody,
^{internodes up to 20 cm long} totes arching, bushy, stiff,
 pointed divaricate buds arising
 at lower nodes, elongating into
 stiff, branched, vine-like branches
 up to several meters long,
 very spiny, forming dangerous
 tangles, further up the culm
 these become leafy branches.
 The culms arise singly at
 intervals of 1 m. ±, apparently
 from a branched running rhizome,
 never in clumps; specimens
 all from lower branches, leafy
 and fruiting ones arising about
 3 m. up, sheaths from 4th node
 from ground, imbricate, bases
 on each side overlapping, 1 1/2 times around culm

- 19832 *Eugenia*
rocky bushy slope, abundant,
characterizing a zone 200 m. or
more in altitude.

- 33 *Plant*
common weed in grazed places
- 34 *Plant*
common weed in grazed places

- 35 *Ladenbergia magnifolia*
isolated trees in remnants
of forest.

- 36 *Chiococca alba*
remnants of forest

- Jan. 25 - drainage of ^{Rio} Quebrada
las Ceibas, s.w. of San Antonio
Fortalascillas, road to Neiva above
Platanillo. ~~25~~

Huila
2500 ft.

- grassy or over-grazed and bushy
hillsides.

- 37 *Plant*

- 38 *Anemone*
cut bank above road, rocky earth

- 39 *Canavalia*
~~at base of hill~~ common

shrub 2 m. tall, leaves
deflexed in one direction
(downward) from the branchlet,
ripe fruits black (very
few ripe).

herb 1 m. tall or less, fls.

purple
branched suffrutescent herb,
fls. large, butter-yellow
with maroon center.

tree 10 m. tall, 3 dm. thick,
few flowers left, these white.

small tree with weak
branches, fls. cream-color,
pointing downward, fruits
strongly compressed.

erect herb 1 m. or more tall, fls.
bright lemon yellow.

erect, arching shrub, leaves
silvery, flowers violet-purple.

19340

Gleichenia

cut bank above road

41

Dactyloctenium fruticosum

disturbed places

42

Conyza

banks of road cut

43

Conyza

fls. white

prostrate, hanging over
edge of cut, fls. white.strong-scented, spreading
almost prostrate, fls. orange.

Coll. Rafael Hurtado L.

s.m. *Cinchona pubescens*
above Timba, near Cerro Haya
Valle (a Cauca)

s.m. *Psoralea* Mun. Inza
Santa Rosa, ~~Departamento de Cauca~~

s.m. *Verb.*
Los Cristales, region of Cerro San Pedro
Cord. Occ. Cauca

s.m. *Eleocharis*
above Diviso Chicaos, on way to
Boqueron, region of Cerro San Pedro,
Cord. Occ. Cauca.

s.m. *Rondeletia*
Los Cristales, reg. San Pedro, Cauca

s.m. *Passiflora*
parte alta, serrania de San Pedro
a San Alfonso, Cord. Occ. Cauca.
"bejuco de Buenos Aires"

s.m. *Ladenbergia magnipolia*
Quebradas Coloradas, loma de la
Mesa, Cuchillo de Montalvo,
Rio Sajandi
muy abundante

Cordillera Central, e. slope.
Tierra adentro - Inza -
San Andres - Lame - Mosoco -
Paramo de Moras, Cauca.
June 1943

s.m. *Rub.*
Inza
Legovia, Mun. de Inza

s.m. *And.*
Legovia
"flor rosada, Talla 1-3 m. altura"

25 *Synbolanthus*
toward Paramo de las Moras from Inza
"flor rosada, lavelos crepos"

s.m. *Brunellia*
Alto de Mosoco

35 *Dioscorea*
Lame
"raiz comestible" "Tofinambui"

s.m. *And.*
Legovia

2 *Loranth.*

4 *Legovia* cult

- 5 *Condaminea corymbosa*
Segovia
- 6 *Ficus*
Segovia, Macondo Inga
- 7 *Ladenbergia macrocarpa*
Inga
- 8
Segovia
- 9
Segovia
- 10 *Mimosa*
Segovia
- 12 *Ladenbergia*
Bella Vista, San Andres, Pabon
- 13 *Acacia*
Alto San Jose, San Andres
- 14 *Trichomanes*
Alto San Jose, San Andres
- 15 *Acacia*
San Andres
- 16
Arroyo San Andres

- 17 *Ladenbergia*
San Andres
- 18
'Arroyo de Popayan' San Andres
- 19 *Acacia*
Bella Vista San Andres
'Tulla' (Acacia)
- 20
San Andres
- 21 *Acacia*
San Andres
'Copote incensis' near road to Pabon
- 23 *Acacia*
San Andres
- 24 *Guettarda*
Cerro de Apolina, Lencue
Alto de San Andres
- 25 *Acacia*
~~Pitahaya~~ above San Andres
barro de Inga, Pabon
- 26
Cerro de Apolina, Lencue
Alto de San Andres

27 Alto de Fumbesburgue (near San Andres)

27a Fumbesburgue

28 Fumbesburgue (near San Andres)

29 ~~Puerto~~ Puente Natural de Piedra
Lame

30 Polypodium
same Lame

31 same Lame

32 s.l. Lame

33 Puente Lame

34 Puente Lame

36 Puente Lame

37 Passiflora
Puente Lame

Tierra Adentro, Cauca

Las Minas, bet. Silvia & Inza

~~Dischidia~~ 2. of Paramo Las Delicias

201 Palicourea
fls. blue & white

202 Josa

203 Drimys

204 ~~Dischidia~~

205 Ladenbergia

206 Psychotria

207 ~~Dischidia~~

208 vinelike bush

209 bush

210 Ladenbergia
tree 17 cm. diam.

211 ~~Dischidia~~
tree 16 m. tall, 20 cm thick

212 ~~Dischidia~~

213 Trichomanes

214 Lobelia

215 ~~Cinchona~~
shade216 Cinchona pubescens
Rio Ullucos, road out of Las
Naranjos, above Inza217 Palicourea
Las Naranjos, above Inza
"fl. blue with yellow petals"218 Palicourea
Rio Ullucos, road from Las Naranjos to Inza

219 discarded

220 Ladenbergia
Las Julian, above Tierra Blanca

221 Ladenbergia

222 Cinchona pubescens
Tierras Blancas, bet Inza
& Rio Negro223 Passiflora
Buena Vista n. above Tierra Blanca224 Cinchona pubescens
Montañas de Agua Bonita225 Tierras Blancas
Guettarda226 Buena Vista, above Tierra Blanca
Cinchona227 Ficus
"uva"228 La Granja, Inza
Lappium
"Caulis manglequilla"
Buena Vista alt. 2200 m.
229 Equisetum

1 200

D. a. Cabrera & other editors

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